

The Mining And Metallurgical Journal

VOL. XIX. NO. I

LOS ANGELES, CAL.,

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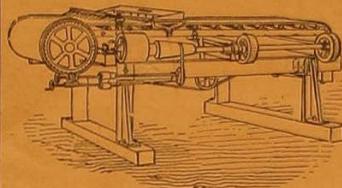
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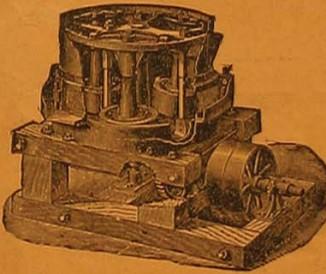
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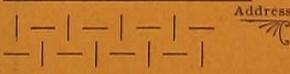
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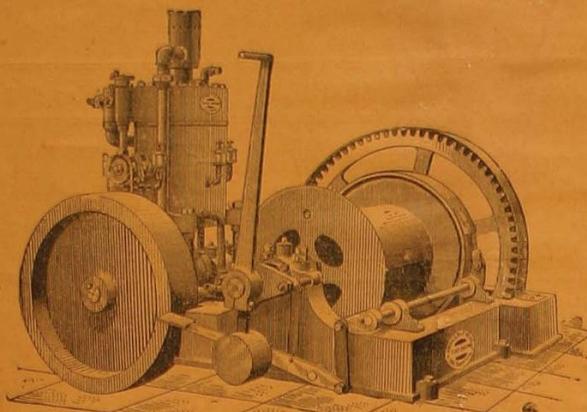
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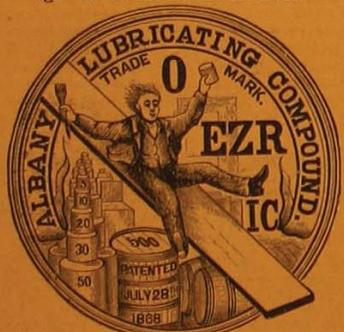
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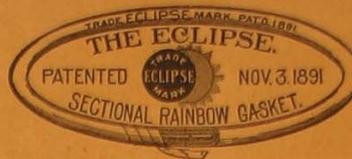
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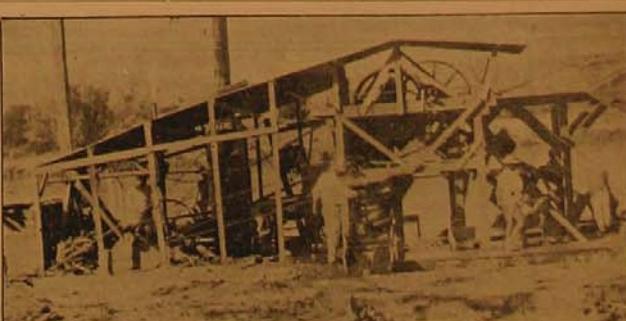
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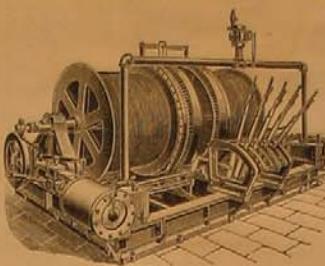
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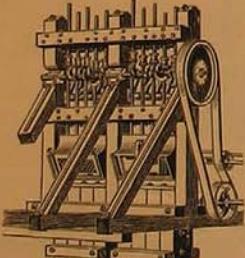
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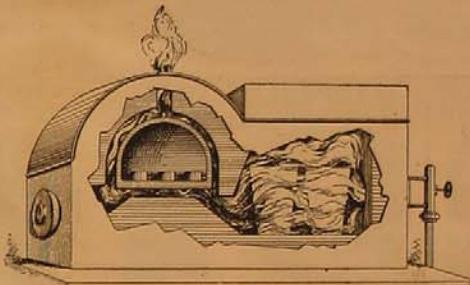
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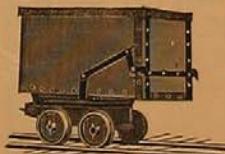
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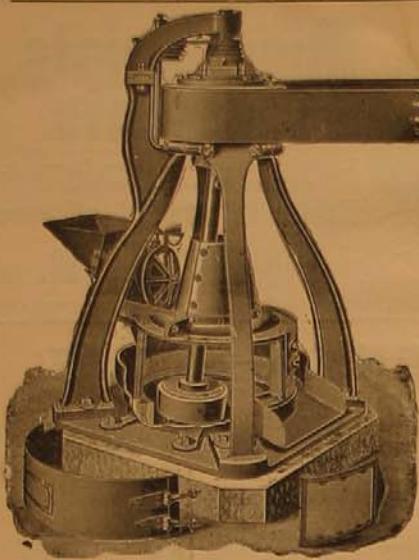
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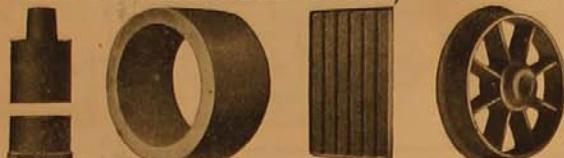
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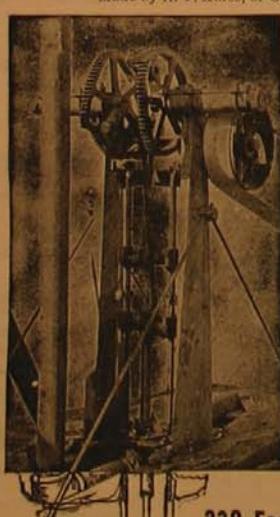
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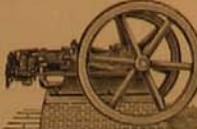
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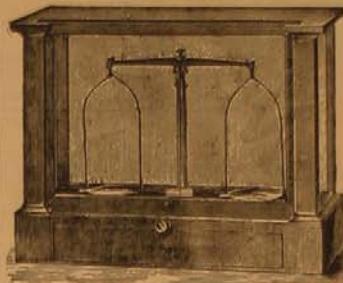
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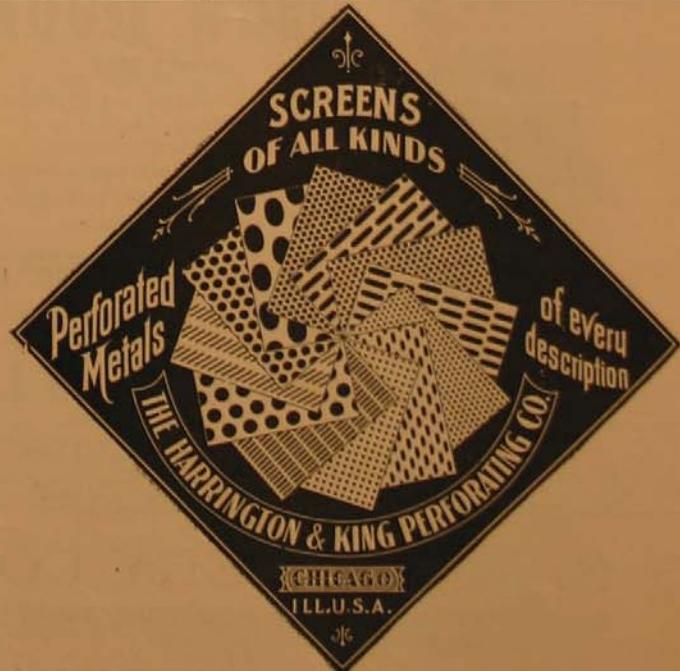


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gers and engineers send us views or cuts for this purpose, with such descriptive matter as will interest our readers.

LEAD SMELTING IN CANADA.

The editor of *Kootenian*, Mr. David W. King, has issued a circular letter to lead miners and others, presenting a view of the present deplorable condition of inaction of the Canadian lead smelting industry. With a free-trade Government in power at Ottawa, he advocates a high or prohibitive tariff on pig lead and imported lead products, so as to stimulate the smelting interests in Canada. As the most important lead-producing section is British Columbia, or the Western Territory in which Kootenay is located, and the home market is in the Eastern Provinces on the Atlantic sea board, a high protective tariff is necessary to secure even that small market. Such a proposition is against the present Government policy and the interests of the eastern importers, as well as being handicapped with high freight rates over only one line of railway. For these reasons the lead miners of Western Canada must look for a market in the United States situated to the south of them, and at present have to pay an extortionately high rate of duty. The ore and concentrates from the few lead mines in the Eastern Provinces, which are now idle, can best be operated by exporting to the eastern smelters near Chicago and in New Jersey. A reciprocity treaty with the United States would benefit the mining and smelting interests in both countries, and would give a much more extended market for Canadian ores than a protective tariff alone can give; but, to secure such a treaty, it would be necessary for Canada to adopt as high a tariff against importations from Europe, etc., as the United States have imposed. The ever-loyal minority party, or the office holders in Canada, are against such a policy, and, as a consequence, the whole mining interests of Canada are sacrificed to the worship of the fetish of Canada which is "Loyalty to the bones of their ancestors" over the sea, in place of being just to themselves and their children in the interests of industry and happiness. For these reasons the Canadian mining industry is not prosperous, and the young generations seek employment in the United States. Capital knows no flag, it is loyal to itself in the interests of self preservation, and the labor interests of Canada, and mine owners especially, should act in a similar manner. One example in proof of this assertion will suffice. For ten years after the Northern Pacific Railway went into the State of Montana, the bullion production of that State was twenty-five millions of dollars, and ten years after the Canadian Pacific Railway had been constructed through the west into British Columbia, the whole mineral production of that western district was a few thousand tons of ore shipped to United States smelters. Reciprocity in trade would induce American and British capital to invest in the rich and extensive mineral areas of Canada by giving the Canadian miners the nearest market they require for ores of all kinds.

MINE OWNERS SWINDLED.

When owners of mining property are swindled by fresh importations who pose as capitalists, and place confidence in such parties without due inquiry as to their standing and ability, they have only themselves to

blame. To employ such people, in place of consulting our local mining engineers, assay-ers, or mining brokers who are resident among us, and have a reputation to uphold, and have a standing for honest dealing and business integrity; but, instead, are willing to encourage the high class faker, and, of course, get taken in, fair-minded people say "it serves them right." The following is a case in point.

M. W. Clay, of McIlheny, Mo., and D. T. Jackson, of Kansas City, Mo., who engineered the new smelter scheme to be erected at San Pedro, in connection with local people, are both fugitives from justice, and wanted in Riverside county and elsewhere for swindling.

D. T. Jackson is in the hands of the Denver police, having been arrested by Chief Farley.

M. W. Clay is supposed to be in Kansas City.

Sheriff W. B. Johnson, of Riverside county, arrived in Denver, 22nd ult., having secured requisition papers from Gov. Budd, 19th March, and will return at once with Jackson.

Jackson and Clay, together with C. E. Davis, C. D. Fuller and Fred A. Fuller, are alleged to have worked a confidence game on the citizens of Riverside and Colton, including Sheriff Johnson, Recorder Gruwell, Conductor Duddleson and Joe Kerr.

They claimed to be capitalists and mine operators, and showed apparently genuine gilt-edged credentials, displaying three eastern drafts on trust companies for \$100,000 each. The trust companies were the Union of St. Louis, the Continental of New York, and the Illinois Trust of Chicago, all of which turned out to be forgeries.

M. W. Clay had elaborate letter-heads of the Missouri, Arkansas and Southern Railroad, with his name as president. There is no such railroad. He also carried credentials as the president of the state bank of McIlheny, Mo. Investigation shows that the town contains twelve inhabitants and has no bank.

The method of procedure was for one part of the gang to represent itself as mine purchasers, while Clay and Jackson would bond mines for the prospective sales.

Under the plea that expenses for experting, examining and testing were required, they would have the owners put up a part of these funds. One of the crowd would do the experting, condemn or approve the mine, and divide the money between them.

One Riverside party is out \$450, two Colton people are minus \$200 each, with back districts around Winchester and Hemet to hear from.

WAR AND MINING.

As barbarous as it is, there are people wicked enough to desire war that profit may be derived from it. At the beginning, war adds stimulation to productive enterprises and gives activity to trade, or in other words, it makes good times for a while at least.

The prospect of a war in which this country is likely to be engaged arouses the American people. While they are noted for activity and energy at all times, they display remarkable power on extraordinary occasions. They prepare promptly, not only for the serious work of war, but put themselves in readiness to reap the benefits that result from the demand for war materials. To supply food for the army and navy stimulates

agriculturists, and the demand for clothing, arms, ammunition, and camp equipage promotes activity on the part of manufacturers.

Mining industries are stimulated quite as much as the others, for they furnish no inconsiderable part of the raw materials which are wrought into war supplies, especially, iron, copper and lead. War of any considerable magnitude would give impetus to the mining of silver ores which contain a large percentage of galena.

War puts money into circulation in large volume, which of itself promotes the growth of productive enterprises and increases activity in trade. As the demand for money is greater, the government is forced to devise means for increasing its volume. No good man, however, wants war, or would defend it except to maintain American rights and to vindicate national honor.

Every interest of this country, and mining not the least, is best promoted by devoting energies to trade, particularly to foreign trade, and the latter cannot be successfully built up without a large American merchant marine. The building of ships gives employment and creates demand for many kinds of raw materials. Ships sufficient to do our own transportation on the high seas would prevent a large outflow of gold.

In the last thirty years, the people of the United States have paid to foreign shipowners for sea transportation the immense sum of \$4,500,000,000, or a yearly average of \$150,000,000. The building and sailing of ships would take labor from other fields, and create a demand for the products of our various industries, and those of mines especially. It would be well if American energy could be aroused to the furtherance of marine enterprise as easily as it is to preparations for war.

Mr. Jefferson said that commerce is a handmaid to all our industries. When it flourishes, they are prosperous. Enlargement of our export trade would aid the mining industry, while war would give it only a temporary stimulation; peace, with the activities of which the American people are capable, would give permanency to it.

UNWELCOME AMERICANS.

It is very evident that Americans are not desired on the Klondyke, nor anywhere else on the gold fields of British Columbia. The Canadian Government imposes duties on supplies and royalty on gold production, and troops are being sent to the gold fields to enforce the exactions of the Canadian Government. Every embarrassment will be imposed on Americans in that country and on the trade from this country. Supplies from the Dominion are not subjected to duties, and, consequently, Canadian miners will have a material advantage over American miners. The restrictions imposed are in fulfillment of British policy the world over. Britons are ready to filch from any body they can, but they adopt effective measures to prevent any body taking from them. It cannot be denied, however, that so far the Canadian Government has not transcended the limits of international law, though their regulations evince selfishness and are irritating.

It is unfortunate that the exact boundary between the two countries had not been settled before the gold discovery and the attendant excitement began. The discovery has added value to the territory in dispute, and both sides will be more obstinate in standing by their claims. The controversy

over the northwestern boundary was protracted through half a century, in fact, it was not finally settled till 1871, though no less than five treaties were made which related to that dispute.

The evident intention of the Canadian Government is to crowd Americans into territory belonging to their own country, and no doubt they will be pushed over the line which the British Government claims to be the true one.

If the result shall be that Americans are pushed out, it is important to know the extent of gold deposits in Alaska, and the feasibility of the routes to be pursued in reaching the fields where the deposits may be found.

It is uncertain whether our Government will render assistance to the miners who may go to the Alaska fields, and especially in building roadways of any character, or whether American capital will be interested to open the country. English capitalists will take more risks than American; for it has been their habit to take risks for more than a century in many countries. In fact, there is little capital in this country which seeks investment as compared to the amount in England and Scotland. No doubt all needed capital will be forthcoming to develop mining on the Klondyke and in all parts of the British dominion. It is not alone that the Canadians and British want to secure the gold of that region, but they want the trade there which they can control by transportation over the Canadian Pacific and by water from Vancouver.

Americans should not go wild over the prospect of gaining fortunes in that northern region, but should study the situation, and act with good sense and prudence. It is wisdom to find out where one will strike before taking a leap.

A NEW PHASE OF MINING.

It is reported that Edison has invented a process for separating gold from sand and gravel without the use of water. There have been several inventions, among them the dry washer, to enable placer mining to be carried on where water cannot be obtained; but the best of them have been but indifferently successful. If Edison's invention will accomplish what is claimed for it, its value is beyond calculation.

There is still a large amount of placer gold in California; but hydraulic mining has been interfered with by the farmers, on the ground that it fills the streams with debris and interrupts the flow of water. In many localities where washing is employed, the difficulty of finding places into which to dump the sand and gravel has been encountered.

It may be that Edison's contrivance will obviate this difficulty. It is said that he has such confidence in it that he is having the Ortiz grant in New Mexico examined by experts, and has negotiated for its purchase on condition that the report is favorable.

Since New Mexico has been in possession of the Spanish, gold has been taken from the Ortiz grant in small quantities. The Mexicans have been in the habit of raking over the ground and picking up nuggets, and of carrying water in barrels and buckets and washing out the small particles. It is especially destitute of water, and so distant from any quantity that it has been deemed impracticable to convey it there through pipes, flumes or ditches, and, besides, there is difficulty in disposing of the washed sand and

gravel. If tradition and common belief are of value, there is in that locality a large amount of gold, and it is to be hoped that Edison's machine or process will be effective, for if so, it will be applicable to other places besides the Ortiz grant.

His study of the subject of extracting gold from its incumbering associations is another evidence of the tremendous energies that are being put forth in the production of gold. Just at this time there appears to be applied to gold production more mental effort, more physical labor, more adventure, and submission to greater hardships and suffering than in any other pursuit. This is caused by the great value of gold and the tremendous demand for it, for monetary and other necessary uses, and for fabrication into forms to gratify the passion of the opulent for ornaments. It is another step in the progress of metallurgic science.

MINING CLAIMS WITHIN FOREST RESERVES.

The law as it stands at present is not generally known which regulates mining on forest reservations, and in reply to inquiries on this important subject we take this means of answering the question of correspondents.

Since the portion of the text relating to forest reservations (ante sections 186, 198) was written, Congress passed an act making appropriations for sundry civil expenses of the Government, approved June 4, 1897, and embodied therein certain regulations relating to forest reservations, among which were the following:

"It is not the purpose or intent of these provisions or of the act providing for such reservations, to authorize the inclusion therein of lands more valuable for the mineral therein, or for agricultural purposes, than for forest purposes.

"The Secretary of the Interior may permit, under regulations to be prescribed by him, the use of timber and stone found upon such reservations, free of charge, by bona fide settlers, miners, residents, and prospectors for minerals, for firewood, fencing, buildings, mining, prospecting and other domestic purposes, as may be needed by such persons for such purposes.

"Nor shall anything herein prohibit any person entering upon such forest reservations for all proper and lawful purposes, including that of prospecting, locating and developing the mineral resources thereof. Provided, that such persons comply with the rules and regulations covering such forest reservations.

"All waters on such reservations may be used for domestic, mining, milling or irrigation purposes, under the laws of the States wherein such forest reservations are situated, or under the laws of the United States and the rules and regulations established thereunder.

"Upon the recommendation of the Secretary of the Interior, with the approval of the President, after sixty days' notice thereof published in two papers of general circulation in the State or Territory wherein any forest reservation is situated, and near the said reservation, which after due examination by personal inspection of a competent person appointed for that purpose by the Secretary of the Interior, shall be found better adapted for mining or agricultural purposes than for forest usage, may be restored to the public domain. And any mineral lands in any forest reservation which have been or which may be

shown to be such and subject to entry under the existing mining laws of the United States and the rules and regulations applying thereto, shall continue to be subject to such location and entry, notwithstanding any provisions herein contained."

Under the authority vested in the Secretary of the Interior by the act to insure the objects for which forest reservations are created, rules and regulations were prescribed June 30, 1897, by the Commissioner, (24 L. D. 589), among which the following are important:

"3. It is the intent to exclude from these reservations, as far as possible, lands that are more valuable for the mineral therein, or for agriculture, than for forest purposes; and where such lands are embraced within the boundaries of a reservation, they may be restored to settlement, location and entry.

"19. The law provides that 'any mineral lands in any forest reservation which have been or which may be shown to be such and subject to entry under the existing mining laws of the United States and the rules and regulations applying thereto, shall continue to be subject to such location and entry, notwithstanding the reservation.' This makes mineral lands in the forest reserves subject to location and entry under the general mining laws in the usual manner.

"20. Owners of valid and mining locations made and held in good faith under the mining laws of the United States and the regulations thereunder, are authorized and permitted to fell and remove from such mining claims any timber growing thereon, for actual mining purposes in connection with the particular claim from which the timber is felled or removed."

A WOMAN'S PLAN.

The men have been racking their brains over the money question, and, as no satisfactory solution has yet been reached, the women have commenced to try their hands at it. Laura R. White has written an article on the subject of "True Bimetallism," in which she proposes a plan that she thinks will bring order out of this much confused subject. Her proposition is to admit both silver and gold to free and unlimited coinage, without specification of any ratio. That is, the mints should stamp on the coins the quantity and fineness of the metal they contain, whether gold or silver, and that they shall pass for what they are worth in the market as commodities, the idea being that the ratio of the metals shall be established commercially, and not in mintage.

What the comparative value of the two metals is as commodities can only be determined by denying coinage and the legal tender quality to both, thus leaving the price of each to depend upon the supply, and the demand for other than legal tender monetary uses.

One objection to the free and unlimited coinage of both metals is the difficulty in arriving at a satisfactory ratio. The silver dollar is called a fifty-cent dollar, because the metal it contains will only sell for that sum as a commodity, and it is treated as a commodity because the mints are not opened to its free and unlimited coinage. It is otherwise with gold, and as the stamp of the Government fixes the money value, the same quantity of uncoined gold can not be less as a commodity.

The plan is as impracticable as it is novel. The coins, if they may be called such, would fluctuate in commercial value the same as

uncoined metals. Demand and supply are not always the same, and hence the pieces whose quantity and fineness of metal have been certified to by the mints, would be floating measures of value, in fact, no reliable measure at all. The man who received a piece one day might have to part with it the next day for less, or he might receive more. If the coins were money, no man would know one day how much his monetary possession would be the next day. To be of substantial use, there must be certainty of the measure of value and exactness as to the function it will perform. These attributes can only be conferred by positive law. Nothing can be a good circulating medium unless it receives a government stamp, indicating how much it will measure, and making it legal tender, so that every one knows what he gets, and that with it he can pay debt. The women will have to make another trial of genius and skill.

LOS ANGELES, CAL., Feb. 16, 1898.
MINING & METALLURGICAL JOURNAL,
Stimson Block, City.

GENTLEMEN: We feel it due your paper to mention the very favorable and far-reaching impression created by the few lines contained in your recent issue concerning our *Miners' and Prospectors' Guide*.

We have received inquiries for this book from Oregon to Mexico, and as far east as Boston, Mass., and in nearly every instance your paper has been mentioned as the source of such inquiry.

Thanking you for the notice you have given our little book, and hoping that we shall be able to furnish a copy to every miner in the country before our supply is exhausted, we beg to remain, yours very truly,

(Signed) SMITH & IRVING.

We received the above letter from Messrs. Smith & Irving, assayers and refiners of Los Angeles, which shows the appreciation of one of the numerous advertisers of the JOURNAL.

THE EQUITABLE LIFE ASSURANCE SOCIETY
OF THE UNITED STATES,
No. 120 BROADWAY, NEW YORK, Feb. 4, '96.
ADAM COOK'S SONS,
313 West St., New York.

DEAR SIRS:—Yours of the 3rd inst. to hand, asking for my opinion of, and experience with the Albany Compound.

In reply will state, I have used it for the past twenty years, and have also tried other Greases on the market, and found nothing that will equal the genuine Albany Compound. I have found it to be all you claim for it, and more too. It is certainly a pleasure to recommend an article that has all the merits of your Albany Compound.

With best wishes, I remain, yours truly,
J. F. WILSON, Chief Engineer.

Aetna Powder Company.

The readers of the MINING AND METALLURGICAL JOURNAL will find on another page of this issue an advertisement of the Aetna Powder Company. This company is noted for the excellent quality of the goods they manufacture, and especially for their electrical fuzes. The use of electricity in shooting blast, either as common powder or dynamite, commends itself to all who have sufficient work to justify the first outlay for the necessary apparatus; first, by reason of its absolute safety, and, secondly, since by firing a number of holes at exactly the same instant

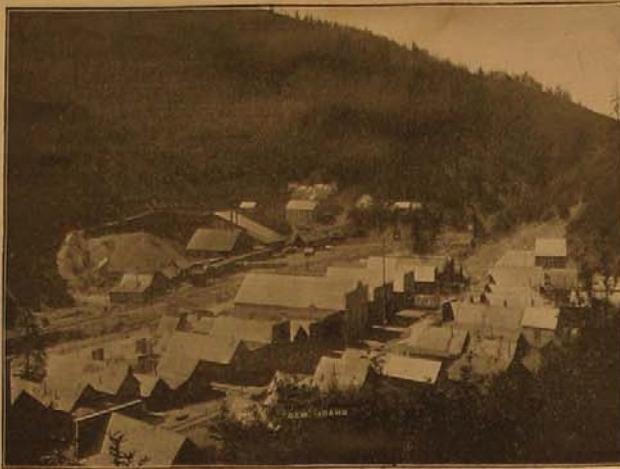
of time, the entire and combined strength of explosion is fully secured. The fuses of the Aetna Company are made of the very best material and workmanship. They use only the strongest caps, which are made to order to meet the requirements. The wires are purest copper; the double covering is heavy and will not strip, and their system of manufacture and testing is so thorough as to make it impossible for an imperfect fuse to be packed for shipment. The company constantly keep in stock wires from four to thirty feet in length, properly packed, each fuse being folded separately. There are two grades, the ordinary quality of single strength or made with quintuple force caps, adapted to all ordinary requirements, and the extra quality of double strength made with sextuple force caps. The latter they recommend for the explosions of Aetna gelatin, and warrant them to explode any of the high explosives, such as blasting gelatin, gelatin dynamite, ammonia powder or ordinary dynamite.

Explosion of Diamonds.

Professor Crookes, in his recent remarkable lecture on diamonds says the *Western Mining World*, mentioned some interesting facts concerning that always popular subject. When, in examining diamonds under polarized light, the black cross of the polarizer revolves around a particular spot in the inside of the crystal and the point is examined with a high power, a slight flaw, and more rarely a slight cavity, is seen. This cavity is filled with gas at an enormous pressure, and the strain which is set up in the stone, by the effort of the gas to escape, is not infrequently removed only by the explosion of the gem. It is not at all uncommon for a diamond to explode soon after it reaches the surface, and some have been known to burst in the pockets of the miners or when held in the warm hand. Large crystals are more liable to burst than smaller pieces. Valuable stones have been destroyed in this way, and it is whispered that cunning dealers have often done a handsome stroke of business by allowing responsible clients to handle or carry in their warm pockets large crystals fresh from the mine. By way of safeguard against explosion, some dealers imbed large diamonds in raw potatoes to insure safe transit on the ocean voyage.

Professor Crookes showed that a diamond could be too hard. From a rich yield of beautifully white diamonds in New South Wales great things were expected. When a parcel of many hundred carats came to England, it was found they were so hard as to be practically unworkable as gems, and they were ultimately sold for rock-boring purposes. The intense hardness of the diamond was illustrated by an experiment. The diamond was placed on the flattened apex of a conical block of steel, and on it was brought down a second cone of steel. As these cones were forced together by hydraulic power, the image of the diamond and the steel faces of the cones were projected on the screen with an electric lantern. The stone was seen to be squeezed right into the steel blocks without being injured in the slightest degree.

The Albany Lubricating Compound and Oil Company, Adam Cook's Sons, proprietors, No. 313 West street, New York, have issued a valuable little catalogue of their goods, which should be in the hands of all machinery users. Manufacturers, and especially users of high-speed machinery, should investigate the merits of the Albany Compound. Write for their catalogue.



VIEW OF GEM, IDAHO.

NORTHWESTERN IDAHO.

The country surrounding the Cœur d' Alene district has been most thoroughly prospected and in the face of this fact there are new discoveries being made every day. The famous Cœur d' Alenes district, containing as it does, some of the prominent mines of the country, needs no introduction. Money has not been spared in erecting magnificent and necessary buildings and plants of machinery, the necessary adjunct to mining on a large scale.

Records show that prospectors have traversed these regions as early as 1863. About fifteen miles west of the old Cœur d' Alene Mission, located at the mouth of the Cœur d' Alene Lake, is located the Fourth of July canon, discovered by some prospectors the 4th day of July, 1863.

Numerous good properties have been located since 1863, and up to 1883 and 1884, at which time the great rush took place, mining was carried on in a more or less desultory manner.

The original locator of the now famous Poorman mine, located on War Eagle mountain, was Scott McDonald. This mine could have been bought for a song at that time.

On War Eagle mountain, at Silver City, were located the three famous Ida Elmore, Golden Chariot, Oro Fino and a dozen other mines, all of which have a record of \$30,000,000. Later on rich mines were discovered on Florida mountain, also near Silver City at South Mountain, twenty miles south and at Flint, midway between Silver City and South Mountain. At the present time Florida Mountain is a greater producer than its neighbor, War Eagle, while South Mountain and Flint are nearly in an abandoned condition on account of the ores being base and expensive to work, but in time metallurgical science will, no doubt, prove that these ores can be economically worked and the values saved.

The mining camp of Gem is situated on a Canyon creek, four miles above Wallace and two and one-half miles distant below Burke.

Here are located the Gem, Frisco, Bedrock, Bear and Granite mines, the first two of which rank as the heaviest producers of lead and silver in the whole Cœur d' Alene district. In the immediate vicinity of Gem there are many fine prospects that for the lack of development are now lying dormant.

We shall look for excellent reports from this company from time to time.

On the 8th of March four feet of ore was struck in the O. K. mine, at Wallace, eighteen inches being fine galena.

The region which will soon begin to attract wide notice among mining men and capitalists commences near Florence, Idaho, and extends south and east, taking in Elk City, Warren, Dixie and the Seven Devils country. It is a wild and rugged country at present, far removed from railroad transportation, but whose wonderful mineral wealth cannot fail to attract within a short time one of the large transcontinental lines that pass both to the north and south of that section.

Very recently Charles A. Moore, a prominent young business man of Spokane, who is also treasurer of the Warren Consolidated Gold Mining Company, went to inspect the development work on the property belonging to the company. From Florence to Warren, a distance of 48 miles, Mr. Moore made the trip on snow shoes. He speaks entertainingly and enthusiastically of the work that is going on in the different mines of that camp, and predicts a bright future for that entire district, which is mentioned above.

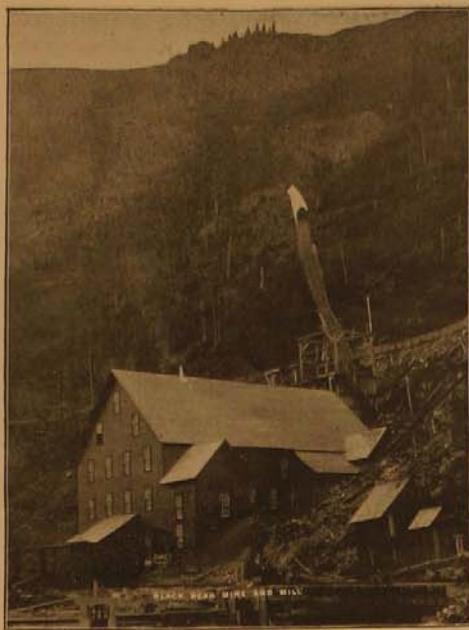
The properties of the Warren Company are under the superintendence of James Wilson and are the Sadie A and Eagle claims, situated at the head of Martenus creek, on Tailhol trail, and about four miles from Warren. The first named property has three distinct ledges, while the latter has at least one that runs lengthwise through the claim. On the middle ledge of the Sadie A the company has sunk a shaft to a depth of 37 feet. At the surface of the ledge there was a pay streak four inches wide, which has widened out to 16 inches. The pay streak is ribbon quartz of high grade and free milling. Ore from the pay streak gives a general average of a little over \$200 per ton. The company, as soon as the weather permits, intends to sink the shaft to a distance of 200 feet.

The Rescue, which is in the Warren camp, has paid its owners \$110,000. There is about 3,000 feet of work done on the property, and the lowest depth attained is 200 feet.

The Little Giant, which is owned by the pioneer prospector, George Rebolt, and was discovered by him while working a placer mine twelve years ago, has paid its owner



VIEW OF WARDNER, IDAHO.



BLACK BEAR MINE AND MILL.

over a quarter of a million dollars, and ore has been taken from the claim which was worth from \$1 to \$4 per pound. Four tons of ore shipped from this mine to San Francisco, netted the owner over \$3,000, and one run of eight tons netted \$990 to the ton.

The Goodenough, which is owned by the Idaho Consolidated Company, a syndicate of Boston capitalists, of which C. Czesic, of Spokane, is manager, has an upraise shaft 125 feet deep, with a 400-foot tunnel. The company recently put in a five-stamp mill and in their first run of three weeks cleaned up \$8,000.

The Iola, which is owned by the Honest John Mining Company, of which Capt. Moore is manager, has about 2,300 feet of tunnel and drift work and has netted the owners about \$100,000.

The Arles has produced ore which has netted the company \$600 per ton.

The Keystone, which is owned by a man named Reynolds, who lives at Weiser, is another property that will make its owner a rich man. The ore taken from the claim while the assessment work was being done last season, amounted to eight and a half tons, which netted the owner \$85 per ton, besides the concentrates, the value of which has not been ascertained.

There are many other properties that are being worked and have given good returns to their owners. The attention of Boston capitalists has been attracted to the district and there are at present a number of deals pending for prominent properties that are partially developed.

In speaking of large ore bodies the *Florence Miner* says: From the development work done in the principal mines of this camp during 1897, mining men have learned important lessons. It was demonstrated that the ore bodies are much larger than was expected, and instead of mills of small capacity working high grade ores it will require just the opposite, and mines that may not pay more than expenses with a 10-stamp mill may be made to yield great profits with mills from

five to twenty times this capacity. Taking the Banner, Gold Bug, Hiyu, Poorman, What Cheer, Ozark, Spokane or in fact any mine in camp where a considerable amount of work has been done we find from a few inches to several feet of high grade ore which will pay if treated in anything from a modern mill to a primitive arastrum, yet while extracting a ton of this ore several tons of so-called waste running from \$2 upward is taken out and thrown over the dump, and it is no exaggeration to say that the greater part of the lead matter now considered of no value will be treated at a good profit, when plants of greater capacity have superseded the few small mills now in

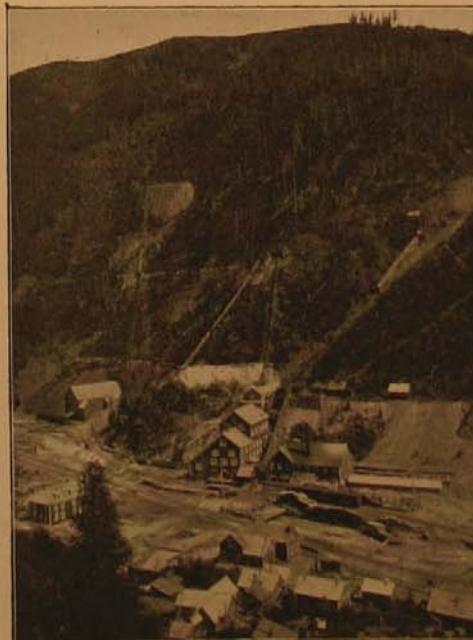
operation. Many a mining man of more or less experience came to Florence during the past year and went away disappointed and perhaps doubting the veracity of the *Miner*, because after having read of a ledge ten feet wide, they found perhaps ten or twelve inches of quartz. It is this class of operators who are beginning to awaken to the actual condition of the situation, and many who but a few months ago confined themselves to looking for rich ore are now figuring the size between the walls, having at last learned that a dollar in profit extracted from \$5 rock is of the same value as that from ore of higher grade, and that quantity cuts a most important figure in the earnings of a mine.

The Bunker Hill and Sullivan mines, located at Wardner, Idaho, were first located by a man by the name of Kellogg, in the year of 1884, for parties who had grubstaked him. These gentlemen, Messrs. Cooper and Peck, two doctors from Montana, wanted their share of the property as a matter of course, but Kellogg tore up the notice of location before the claim was recorded, and put his friends, Philip O'Rourke and Con Sullivan, onto the mine, who in turn located the property in their own names. As a consequence of this action on the part of Kellogg, Messrs. Cooper and Peck brought suit for their share in the property. Kellogg claimed the burro located the property, but he did not say which burro. The court decided that Messrs. Cooper and Peck were entitled to one-fourth interest in the Bunker Hill mine, and left the Sullivan mine entirely clear.

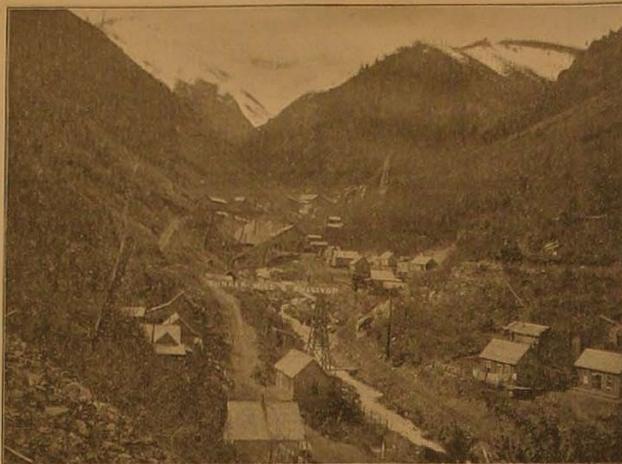
This property is now under the management of Mr. Fred Burbridge, the assistant manager of the company's property. The records of these properties are so well known that more than a passing notice of them would be superfluous.

The Union Mine is also a well known mine in the Cœur d'Alene district and was located by the Skiffington Bros., (Thomas, Joseph and Robert), Timothy McCarty and Mike Heins.

The Skiffington Bros. and McCarty were



BLACK BEAR AND FRISCO MINES.



BUNKER HILL AND SULLIVAN MINES.

also the original locators of the world-famed Frisco mine.

The well known mining town of Wallace was located in the Spring of 1885 by Col. Wallace, and was then called Placer Center. At that time, and for several years later, it was quite common to see bear, deer and nearly all kinds of game within the limits of the city limits and in traveling up and down the old Mullen Road, built by Capt. John Mullen for the government from the head of navigation on the Missouri River at Fort Benton, Montana, to the head of navigation on the Columbia River at Wallula in Washington.

J. F. Holden, an old time prospector, located a number of good properties at Wardner, which have since turned out to be producers. Mr. Holden gave the JOURNAL a description of the trouble regarding the ownership of the Crown Point mine in Government Gulch at South Fork.

Lary O'Neil located the Crown Point mine, and completed the necessary work and left the claim for the time being. During his absence a crowd of sawmill men from Kingston and the District Mining Recorder Caldwell re-located the property in October, 1886, claiming the Crown Point location was not a legal one, and calling it the Eureka mine. They were working the property when O'Neil and his friends returned and took forcible possession. Pat Flynn, a noted character, was employed with others by O'Neil to guard the claim.

The Saw Mill people gathered a corps of followers and returned well armed, a fight ensued and Jack McCaughly was killed outright, while Ed Levall was wounded, both on O'Neil's side.

On the Saw Mill men's side J. Campbell was shot through the shoulder.

Jack Dunn and Mr. Holden, who had witnessed this fight notified the sheriff at Wardner, who at once organized a posse and arrested every one that could be found. This affair caused more excitement at Wardner than was ever before witnessed; in fact, the whole country around was awakened and took a lively interest in the proceedings of the trial. It was finally compromised after fighting in the courts for about three years.

The work of prospecting has gone on merrily during the past year, and fresh and important discoveries were made throughout the northwest with the result that new companies

were brought out, while others are in a forward stage of formation.

Enterprise in this direction, it is feared in some quarters, may be overdone, and caution is the order of the day, although at a time when there is a scramble for everything, there is always a danger of "shady" ventures being rushed in with the good.

Still it must be admitted that there is not apparent a single enterprise that savors of "wildcat," and that a great majority of the newly brought out concerns rest on solid basis and having a regard to the vast amount of money invested, it will probably occur to the most cursory observer that there is but little chance of any break or collapse for at least some time to come.

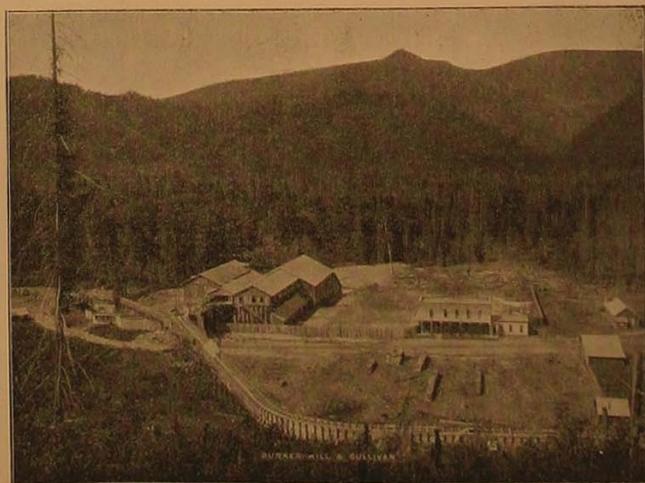
In equipping an assay office or chemical laboratory one of the greatest difficulties is to find a cheap and efficient way of crushing and pulverizing samples, some of which are in small quantities for an assay or analysis, while others often exceed one hundred pounds in weight. While a very light crusher is sufficient for small samples it is entirely inadequate for large lots, and it is in most laboratories out of the question to think of putting

in a large power crusher as the expense is too great and the supply of large samples too uncertain to warrant the space occupied and expense of operating. J. E. Surman & Co. of New York, have put upon the market a crusher and pulverizer that fills a long felt want. It is heavy enough to crush large samples and at the same time takes up very little floor space. The mortar has two handles, which reduces very materially the labor of breaking hard or large pieces of material. One handle can be removed when the material is sufficiently crushed and the operation of pulverizing continued with the rotary motion. Anything from glass to pig iron can be pulverized. All interested can obtain full particulars by addressing J. E. Surman & Co., 103 E. 14th street, New York City.

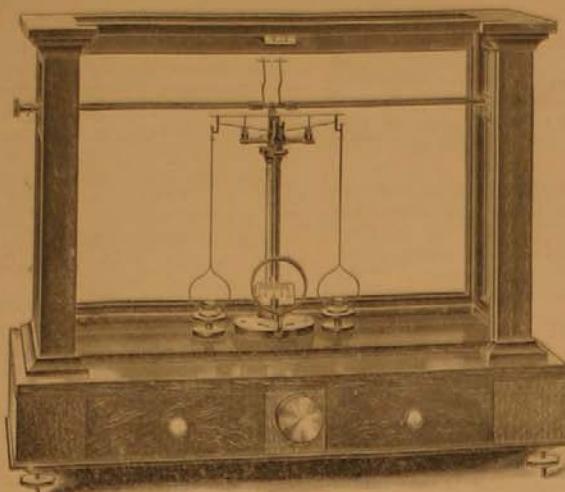
A Great Rock Crusher.

The number 8 Gates Rock and Ore Breaker may well claim the distinction of being the largest rock crusher ever made, and it probably marks the highest limit attainable in a practical way. A recent report from one of these machines gives a record that will, doubtless, stand long at the front. The Pittsburg Limestone Company, Limited, of New Castle, Pa., report officially as having in 14 months crushed 23,174 cars, averaging 24 gross tons each. The working day was 10 hours. This gives an average hourly product of over 180 tons for 14 months. On June 21, 1897, this machine crushed 4,350,000 lbs of rock, or 2,175 tons. This means a freight train of nearly 100 cars.

The Consolidated Kansas City Smelting and Refining Company, represented in Mexico by L. P. Feustman, has obtained a concession from the government for the establishment of a smelter near Villa del Carmen, on the Mexican bank of the Bravo del Norte river, Coahuila. The smelter shall have a minimum capacity for treating seventy-five tons of ore a day. The government grants it exemption from taxes, except such as are collected in the form of stamps, for eight years, and further permits it to import, duty free, such machinery and appliances as are necessary for its establishment. Work must begin on the smelter within two months, and it must be completed and in operation by September 1 next.



BUNKER HILL AND SULLIVAN CONCENTRATOR



A NEW SHORT BEAM ASSAY BALANCE.

A New Short Beam Assay Balance.

To meet the constantly increasing demand for more accurate and rapid assay balances, Wm. Ainsworth, of Denver, Colo., is now making a balance shown in the accompanying illustration, which has so far proven equal to the most exacting conditions and severe service.

The balance is sensible to 1-200 milligramme, and, at this increased accuracy, weighings can be made in from one fourth to one sixth the time of those made on any long beam balance. It can also be adjusted to weigh to 1-400 milligramme, when extreme accuracy is alone sought for.

In making a balance of this accuracy, it is evident that too much care cannot be taken in dividing and adjusting the beam, and, therefore, the construction of the beam of this balance has necessitated the construction and use of more accurate and improved machinery and test instruments than have been heretofore used.

For adjusting the beam to equilibrium there is placed upon the center edge, back of the beam, a star wheel on a finely threaded arbor; by moving the wheel backward or forward, it is moved along the arbor and thus makes this adjustment. The position of this adjusting device, back of the beam, allows the rider to be used over the center of the beam.

The new skeleton hanger used on this balance has been designed with the view to making it as light as possible, and still maintain the required strength. It also has the advantage to be gained by having a single point in contact with the pan rest, which greatly eliminates its liability of sticking to the pan rest, and causing the beam to throw to one side or the other. The counterpoised sliding door has been removed to better illustrate the working parts of the balance.

A catalogue fully describing this and other balances manufactured by Wm. Ainsworth can be had upon application to the Denver Fire Clay Co., Denver, Colo.

The Colorado Iron Works Company of Denver, Colorado, have closed a contract for a 100-ton fine concentrating plant. Their high speed, narrow face rolls will be used exclusively to do the fine crushing. The Fernando Mining Company, of Fernando, Mexico, are the purchasers of this plant.

hundreds of people all bound for the north.

There has been a very heavy fall of snow throughout the Slocan district, in some places there being 35 to 40 feet, which has greatly interfered with operations and traffic; this, of course, has had considerable to do with things being exceedingly quiet there. Here again the people have got the Klondike craze, prospectors are leaving in great numbers for the coast, and are offering their prospects for a mere song.

The Noble Five in this district, which has been in financial difficulties for some time past, is now once more placed on a firm basis, with sufficient funds available to continue active development on their properties, which are considered good, and will no doubt in a short time join the list of shippers.

Things around Rossland are a little quiet at present, but this Spring will see considerable change, as the British America Corporation will no doubt then be working on their newly acquired claims. This company have made no new purchases since last writing.

PERCY W. CHARLESON.

CORRESPONDENCE**ARIZONA.**

CASA GRANDE, ARIZ., March 18, '98.

There is some activity in this section. They are doing but little at the Mammon. Since Hadley's death, the property has been under bond to a Mr. C. F. Kuhnen and John N. Isgrig. Last year they milled about 1,000 tons of ore, but since have done nothing.

The Turning Point of Luck Mine, 20 miles is down 250 feet and has large bodies of ore, free milling gold and silver, which they claim to be worth \$20 per ton. Prof. W. B. Potter, of St. Louis, is at the mine now, sampling the ore, with a view of advising the Company, who are St. Louis people, of a scheme for working the ore, and I learn from the Company that they will erect a mill as soon as they get Prof. Porter's advice.

The old Vekol Mine is showing some life again. This mine is famous for having taken out a million or more of silver under the late John D. Walker. The mine has been idle for years, pending some litigation over the Walker estate which has at last been settled.

There are large dumps of 40-ounce ore that are being worked by a new electrical process, owned and operated by Fort Wayne, Indiana, people. The ore passes directly from the stamps to a pan charged with a large quantity of quicksilver, where all base ores are immediately decomposed sufficiently to give up the gold and silver, a small dynamo furnishing an electric current to do the business. The process is continuous and must be very economical, and, if a success, will revolutionize milling. The Fort Wayne Company will sell no machines, preferring to work on royalties; of course, part of their scheme is secret, which is somewhat suspicious.

MINER.

BRITISH COLUMBIA.

VANCOUVER, B. C., 7th March, 1898.

EDITOR JOURNAL: Things in the local share market have been exceedingly quiet of late. This is accounted for by the fact that at present all attention here is directed to the Klondike. Every available place in the city is now filled, and people are living in tents. The rush has apparently only started, as every train and boat arriving is bringing in

Eagle Mountain Mining District.

(From our Special Correspondent.)

The Eagle Mountains are located about 40 miles northeast of Walters, on the Southern Pacific Railroad, in Riverside county.

A few years ago, nearly all the mines in the district could be had for a few hundred dollars, while today there are very few mines to be had for any price.

One must not mistake what I say as meaning there are no mines in the Eagle mountains, because "the woods are full of them."

Among the most noted is the Iron Chief mine, owned by Robert Straus, C. D. Lane, of the Utica mine, in Calaveras county, Cal., and Col. Shinn, of Los Angeles, Cal. There are 15 cars of machinery at Walters Station for the Iron Chief mine, and more to come. This machinery is to be used in the construction of an 80-ton cyanide plant, to work the ores of the Iron Chief mine, and it is probable that they will do custom work.

The Cactus mine was bonded last week for \$90,000. The mine is well developed and is showing up in good shape.

Development work is being vigorously prosecuted on the Buzzard Springs and Jordan properties. These claims are first class properties, and will one day make good-paying propositions.

The Colosus, owned by W. E. Cummings, the Los Angeles shoe man, Mr. Forthysc and Mr. Coon, has a great quantity of ore in sight and is showing up rich. There is a 16-foot quartz vein on the property.

Frank Baxter has \$70 rock in his Tough Nut mine. The Tough Nut is one of the best mines in this district.

Billy Blair also has a good piece of property in his New Era mine. There is a 20-inch vein of rock, going \$11.9 to the ton. There is not much development at present on this mine; but, before the year is out, we expect to see a large dump and a well-developed mine.

There was a contract let for extensive development work on the Yankee Girl mine, owned by Messrs. Baxter & Blair.

Development work on the Black Bird, Kangaroo and Black Eagle mines goes steadily on. The owners have been figuring on shipping some ore.

The Bald Eagle and Golden Eagle mines,

owned by Walter W. Brown, are showing up well. Mr. Brown has one of the largest bodies of ore in the country. There is a vein on the property which will average 65 feet in width and carries \$26 in gold. It is a black hematite iron ore. Assays as high as \$400 per ton have been obtained from these properties.

The Dry Placers, in Bald Eagle, Wash., are also very rich. A few men working one shift took out \$600 in the month of February.

In the McCoy district, just east of the Eagle Mountains district, the mines are all looking well.

Herbert Lang and J. J. Lonergan, of Los Angeles, Cal., have just completed an examination of the Jumbo and Hank properties. There is a well defined ledge of quartz, running as high as \$60 in gold and 35 per cent in copper.

In the Corn Springs and Chucawallas, considerable prospecting and development work is going on. In fact, there is more activity in that section at the present time than has been noted for years.

H. A. Adams, who has been working an arrastra in Corn Springs, has just sent in a bar of gold bullion.

Charles Robinson, H. Fink and Mike Conway have a good piece of property in the Corn Springs district. Ore that assays \$400 has been taken out of their property.

The Chucawalla Mining and Milling Co., under the superintendence of Mr. Carter, the new superintendent, is working \$20 ore with excellent results. Mr. Carter is a Colorado man and is making things in and around the company's mines look pretty lively.

The Granite Mine is reported bonded. They anticipate commencing active development work soon.

Crawford & Bowles are working the San Diego mines. They recently encountered a good lead, from which they are extracting some first class ore.

The Sterling Gold Mining Company have a well defined ledge of good ore. They are figuring on putting in a mill and cyanide plant.

Fish & Co., of the Calico Range, are putting in a 10-stamp mill to work ore from the Dos Palmas Mine, at Dos Palmas.

The lack of water is a serious draw back to mining in this section at the present time; but, with a little capital invested, there could be developed a sufficient supply at numerous places to supply the whole country round.

The past two or three years have witnessed an increasing interest in mining affairs in this county. There are many latent resources in the county which will be developed when better or cheaper transportation facilities are afforded.

TUOLUMNE MINES.

East Belt.

In a mine owned by the Scanarino Bros., a very rich strike was made. The ground in question lies between the Dreisam and North Fork mines at Anastraville.

THE JUNCTION MINE.

A good 2-foot vein shows of high grade rock.

THE DREISAM.

Good reports are coming from this mine. The shaft is being pushed downwards by three shifts, new and heavier machinery is about to be added, a powerful compressor is among the list.

THE WHEAL PERRAN.

The water power hoist is about completed when sinking main shaft will be commenced.

THE GRIZZLY MINE.

A twenty-stamp mill is now ordered, to be placed on the mine as soon as the contractor can get it ready. This mine was purchased last week, and a new directory elected who will push the development of this fine property to their utmost.

The Neville electric plant is to be leased to the Tuolumne Water Company. The dynamos are situated on North Fork of Tuolumne River adjacent to the above mine. The electric plant is the most powerful in the county and of great value.

Mother Lode.

All of the mines in this belt, owing to the late rains are in full blast. Mills all running, hence the output will be very heavy this month. Several new mines are to be erected as soon as the necessary lumber can be hauled to the mines. All along the whole line, from Tuolumne River to Stanislaus River, great activity prevails. Strikes of rich rock are of daily occurrence—to mention any in particular would be invidious. The Rawhide, App, Jumper, Eagle, Shammut and Dutch are in bonanza, while any number of others are doing very well, but not all so much developed as those mentioned.

ARGUS.

Santa Paula Mines.

A valuable group of mines, north of the Borax Lake, in the Argus Mountain range, 26 miles northeast from Randsburg, in Inyo County is the Santa Paula group, owned by F. M. Edgar, R. H. Irvin, John Starr and L. M. Hirdison, of Santa Paula, Ventura County.

The group consists of the Comet, Starr, Santa Paula, and three others, all in the same locality. The principal work has been done on the Comet and Starr at the junction of the two claims. A shaft has been sunk to a depth of ninety feet, following the ledge all the way, and prospecting the entire depth. Side drifts have been made at the bottom, and also part way down. A large quantity of ore is on the dump, which assays all the way from \$38.50 to \$126 per ton. The ore is stained with copper, and looks different from the ore around Randsburg. It also contains some silver. The Santa Paula is on a steep hill side, near a mile distant, but in plain view, and shows a larger body of ore, but not enough work has been done to tell what is beneath until recently, when they have had two men developing the Santa Paula ledge for some time, and considerable ore is being taken out that will average \$35. The rock in this mine is of a softer character and not so copper stained.

The company is now working 4 men, and have a comfortable tent house, with a shaft-house at the mine. It is also the intention of the company to develop the Kilmer claim, situated about three miles from the Santa Paula group. The only assay made from this claim, from ore taken from the surface,

showed \$67.18 in gold and \$1.50 in silver. Some work has been done on each of the other prospects, but not enough to indicate what they are. In a short time one of the gentlemen interested will go out to the mines to ascertain whether water can be developed in the vicinity to operate a 5-stamp mill, and if so a mill will be put in. The owners have shipped some ore to Selby's, at San Francisco, but they now propose to wait for the completion of the big mill at Barstow before shipping any more.

F. M. EDGAR.

Arrow Mining District.

The Arrow Mining District is located in the Providence range of mountains in the eastern portion of San Bernardino county. Considerable activity has been displayed in that section in the last few weeks.

The Star and Crescent mining company, under the superintendence of George Berg, the general manager, are putting up two 2-stamp prospecting mills and a concentrating plant on their property at Gold Stone, 25 miles north of Fenner.

The death of P. H. Keane, which occurred the 12th of March at Needles, will have a tendency to settle the litigation of the Hidden Hill mining company, of which Thos. O'Brien of Needles is the principal owner, so that the old workings will again be made to pay equal with their handsome returns of the past, which was a record of a car load a month, with a value of \$9,000 per car.

Barker & Gannon are breaking ground for their new 20-horse power hoisting engine. They expect to be working from 18 to 20 men—three shifts per day—in about 60 days. Messrs. Barker & Gannon intend to sink their shaft to the 700 foot mark. They have now a 205-foot shaft which contains ore that will average \$17.85 per ton, and a ledge 22 inches in width from top to bottom. This ledge assays 30 feet from the surface of the ground, \$8.22 per ton. At 65 feet it averages \$67.50 per ton. The ore in the winze between the 100-foot and the 144-foot levels averages \$67.75. Hand samples going \$222 in gold and 12 per cent. copper have been taken.

From the 100-foot level down in the Barker & Gannons property the ore is nearly all copper sulphurettes.

John Domingo has struck a very rich streak or ore at 90 feet in his Mina Prieta.

Mr. Kerhl has secured the tailings of the Old Bonanza King mine and will work them with a Woods Dry Concentrator.

Things look far more favorable in this district than at any time in the last six years.

The new stamp mill at Barstow and the finding of water six miles from Fenner by the Santa Fe Pacific Railroad gives assurance that the low grade ores of the eastern part of San Bernardino county will soon find a market. The eastern capitalists, who have recently examined the mines of the Arrow mining district claim that it is nothing more than prejudice that deters capital from developing the desert properties.

They are now assured that the mines on the desert do go down and contain values that will pay to work. This is encouraging for us old timers who have had so much prejudice to contend with in seeking capital for our development work.

Miscellaneous Mining News.

ALASKA.

Reports from Skagway and Dyea continue to give gloomy descriptions of the general condition of things there. Many people are reported to have no money for food or lodgings and are carrying packs across the pass at far lower prices than has been paid to the Indians. Sickness is very prevalent, with many deaths from spinal meningitis and pneumonia. The gold seekers that have returned to the towns recently seem to have little or no gold. The sanitary conditions of Skagway are reported to be very bad, and the

prospects favor an outbreak of typhoid fever with warm weather. The gamblers and thugs that infest the town are now under some control, as the United States troops stationed there are enforcing order.

Alaska Treadwell Gold Mining Company. The return for the month of February shows 23,883 tons of ore worked, and bullion shipped amounting to \$34,515. Of the bullion, \$11,068 was obtained from concentrates (sulphurates) treated by chlorination.

ARIZONA.

A fine opening exists at Tucson, Arizona, for a machine shop and general supply house for mining and other machinery. That place is headquarters for an enormous extent of mining region, embracing much of Southern Arizona and Sonora, and one firm enjoys a monopoly of the business, which could easily furnish support for a number.

The Mammoth mill, at Mammoth, started with 50 stamps last week, after being overhauled by Geo. H. Mayhew for McFarland Bros., of Denver, the contractors. A wire rope tramway connects the mine and mill.

The tramway is $\frac{3}{4}$ miles in length and commenced running on the 15th inst. without a hitch. This line is what is known as the Bleichert tramway of Trenton, N. J.

The Mohawk Mining Company is running 30 stamps at the mine, getting its water from the San Pedro.

The President mine, owned by W. S. George at Santa Marie, is developed by two shafts, one 80 feet deep and the other 160, all workings being in ore. The pay streak ranges from 10 to 18 inches in width and plates \$206 per ton. Mr. George has taken \$300 out of the west drift, has \$3,000 worth of ore in sight in the east drift and \$2,000 worth of ore on the dumps. He has refused two offers, running up into the thousands, for a half interest in the mine.

CALIFORNIA.

AMADOR COUNTY.

Work at the Amelia Mine is progressing, the shaft having reached 480 feet. Water is coming in fast and is causing some bother.

The Anita will sink to the 1000-foot level. This necessitates more powerful machinery, which will be put up soon.

At the Amador Queen No. 1, the shaft is down 880 feet, and Supt. Dye is going down until he proves his theory that depth will develop a large and paying ledge.

Davis & Marsh struck a good prospect near Butte Mountain last week.

CALAVERAS COUNTY.

The development at the Sugar Pine Mine, near Murphys, is a shaft 40 feet in ore 4 feet wide. A tunnel taps the vein at a depth of 150 feet, exposing the lode 4 feet wide.

The Buckhorn is being worked with success, several crushings yielding satisfactory returns.

F. W. McNear continues operations in the Heinsdorf ranch. The shaft has reached 100 feet depth.

The Lone Star Mine, after a clean-up of something over 500 cars of gravel, which

resulted satisfactorily, contemplates sinking a new shaft, as they struck water and more than they could handle.

Wilbur, formerly one of the owners and now the manager of the Royal Consolidated quartz mine in Calaveras County, says that the actual price paid for the mine was \$400,000, and the property was undoubtedly worth every cent of the purchase price.

KERN COUNTY.

E. M. Hamilton, of East Los Angeles, is building a 5-stamp mill near Rosamond, Kern county, to mill a lot of \$35 rock from his mine.

SAN BERNARDINO COUNTY.

The Holcomb Valley Company has shut down again. The great trouble seems to be a lack of management, or else too much of it. The change in superintendents every few weeks is not conducive to success, and the English syndicate that has sunk hundreds of thousands of dollars on the mines will never get their money back unless there is a decided change in the manner of doing business inaugurated.

The Colorado Iron Works Company, of Denver, Colorado, made a shipment of five carloads of machinery for the Randsburg-Santa Fe Reduction Co., who are installing a 50-stamp mill plant and a sampling mill at Barstow, California. The balance of the machinery will be shipped as soon as completed.

SHASTA COUNTY.

Six, and sometimes nine trains loaded with ore are run from the Iron Mountain Mine to the Keswick smelters every day. Each train load consists of 100 tons. This makes an average of about 600 tons of ore hauled each day from the mine. Added to this is the immense quantities of ore hauled in from various near-by mines for flux. The furnaces, three in number, have a capacity of 300 tons per day each.

SISKIYOU COUNTY.

News comes from Yreka of a very rich quartz strike just made on Oro Fino Hill, in Scotts Valley. The lucky prospectors are Jack Hayes and George Kingery, and the ledge they have found is said to be two feet wide. Where the pay shoot was struck, the rock is said to assay fully \$20,000 to the ton. This discovery is near the famous Blue Jay Mine of Graves Brothers, which yielded over \$100,000 in pockets since last September.

TULARE COUNTY.

J. W. G. Forbes of Glendora is negotiating for the purchase of the Talc Mine at White River. Should Mr. Forbes succeed in getting the property, he will sink a shaft 200 feet deep, put up a new mill, two concentrators and a cyanide plant.

COLORADO.

Moon-Anchor.

The annual meeting of the stockholders of the Moon-Anchor Gold Mining Company was held at the company's office, March 18th. A very large majority of the 600,000 shares of stock, for which the company is capitalized, was represented either by person or by proxy. The meeting was entirely harmonious, and the annual reports submitted were full of interesting and detailed information concern-

ing the big bonanza, and were received with much favor by the stockholders.

The following board of directors was elected for the ensuing year: J. R. McKinnie, Verne Z. Reed, W. S. Stratton, L. L. Aitken, Oliver H. Shoup.

Golden Fleece.

The annual report of the Golden Fleece Mining and Milling Company has just been issued. It dates from January 15, 1897, to January 15, 1898, and gives the directors and officers as follows:

Directors: Messrs. Biddle Reeves, Samuel A. Fisk, Henry W. Hobson, D. K. Lee and George W. Peirce.

Officers: Biddle Reeves, president; D. K. Lee, vice-president; George W. Peirce, secretary and manager; International Trust Company, treasurer; Henry W. Hobson, counsel.

The receipts, disbursements, etc., are as follows:

RECEIPTS.

First class ore, lbs.....	27,808	\$57,432.98
Second class ore, lbs.....	342,445	41,666.93
Third class ore, lbs.....	3,052,366	29,642.97
Interest.....		1,592.48
Sale of machinery.....		275.00
Balance on hand, Jan. 1897.....		30,165.25

Total.....\$160,775.61

DISBURSEMENTS.

Operating expenses.....	\$ 84,024.30
Taxes, 1896.....	2,932.17
Gold Pot and Rain purchase.....	1,250.00
Machinery.....	7,879.60
Colorado City operations	69.15
Bills Payable.....	9,000.00
Dividend, No. 50.....	6,000.00

Total.....\$111,155.22

Balance on hand as surplus, Jan. 15, 1898.....\$ 49,620.39

Bills payable, account Governor Pitkin purchase.....46,288.00

The Colorado Iron Works Co., of Denver, Colo., are installing a gravity tramway on the property of the Golden Star Mine, located at Black Hawk, Colorado.

IDAHO.

The Horseshoe Placer Mining Co., Salmon River, proposes to turn the volume of the Salmon River from its channel at the Horseshoe bend through a neck of gravel—the cut-off proposed being about 1320 feet in length. This will expose the present bed of the river about two miles. They have commenced work.

Since his appointment as receiver of the of the Red Cloud claims, near Hailey, E. Wilson has paid off claims aggregating nearly \$100,000. He will make his final report and ask to be discharged.

MICHIGAN.

At the annual meeting in New York of the Allouez Mining Company, March 8th, the following directors were chosen: Godfrey Morse, of Boston; William C. Stuart, Joseph E. Gay, Leonard Lewisohn, John Stanton, of Newark; J. R. Stanton, George Frothingham, Jesse Lewisohn and Fred Smith, of Michigan.

At the annual meeting in New York of the Atlantic Mining Company, March 8th, the following directors were elected: Joseph E.

GAY, JOHN STANTON, of New York; J. R. Stanton; J. W. Hardley, Isaac B. Crane, William C. Stuart and Samuel L. Smith, of Michigan.

MINNESOTA.

Grading is well under way on the Duluth & Iron Range new line into Two Harbors and the road will doubtless be ready by May 1st. Considerable track has been laid with 100-lb. rails. The winter has been unusually favorable for work. The company's new ore dock at Two Harbors is also progressing satisfactorily, though delayed somewhat by the warm weather.

Large contracts for lake tonnage for the ore-shipping season have been made by the Carnegies and others. Less than 65c. has been paid for what Carnegie tonnage is required outside of its arrangements with the Bessemer Steamship Company. The American Steam Barge Company has a contract to handle nearly all the ore moved by the Minnesota Iron Company, except that carried in its own and affiliated ships. From present indications it looks as if the owner of small tonnage or of small amounts of big tonnage would be worse off than ever this year.

MISSOURI.

The famous Leadville Hollow mine, the "I Know Mine," on the Joplin Prospecting Company's lease, on the John H. Taylor land, changed hands February 3rd. The price was \$30,000. The purchasers were a Philadelphia, Pa., syndicate. They have 8 lots on which there is a fine steam concentrating plant. The I Know has a record of paying more and bigger dividends in the same space of time than any other mine in the district. The dividends have averaged over 25 per cent a month, and it has paid three 25 per cent dividends this year.

We are in receipt of a small, condensed edition of the Ingersoll-Sargent Drill Co.'s catalogue of air compressors. It contains illustrations of their various types of compressors. This is a handy little volume that a great many of our readers would be pleased to have and they can obtain them by applying to The Ingersoll-Sargent Drill Co., at the following offices: Havermyer Bld., 26 Cortland St., New York City; Old Colony Bld., Chicago, Ill., 26 Water st., Cleveland, Ohio, 201 Congress st., Boston, Mass.; 715 N. Second st., St. Louis, Mo.; 21-23 Fremont st., San Francisco; 300 Main st., Butte, Mont.; 1718 California street, Denver, Colo.; 259 Main st., Salt Lake City, Utah; 299 St. James st., Montreal, Canada; P. O. Box 1809, Johannesburg, So. Africa; 1142 Queen Victoria st.; London, E. C.; 4th and Washington sts., St. Paul, Minn., 308 First ave., South Seattle, Wash.

**MAGNETIC IRON ORE CO.,
BENSON MINES, N. Y.**

Sept. 13, 1896.

**THOMAS ROBINS, JR., PREST.,
ROBINS CONVEYING BELT CO.,
NEW YORK.**

DEAR SIR:—Relying to your inquiry we write to say that the patent belts we bought from you a year ago are practically as good as new today and, as they show no appreciable indication of wear after handling 70,000 tons of our ore, we expect them to last a good many years.

Our ore is, as you know, very heavy and breaks with a sharp fracture owing to the quartz, and our climatic conditions are also very severe.

We have entirely substituted inclined belt conveyors in the place of vertical elevators owing to the almost continual trouble and expense connected with the latter. We have had four vertical chain elevators, the best we could buy, but we had to throw them out.

From the way your belts are wearing we don't think your chances for another order are very good at present—unless we extend the plant. Yours truly, S. H. EDWARDS, Superintendent.

**UTICA MINING COMPANY,
ANGEL CAMP, CAL., MAY 5, 1897.**

**TAYLOR IRON & STEEL CO.,
HIGH BRIDGE, N. J.**

GENTLEMEN:—I ship you by express one out of the first set (5) of Manganese Steel stamp shoes tested in 1895 in the Utica Mill, 750 lb. stamp, drop about 6 1/4", 100 drops per minute, crushing four tons of quartz per day of 24 hours, per stamp, making 20 tons per day for these five shoes continuous running, with but two days' lost time, equal to 266 days. This shoe was 9" long by 8" face, weight, 145 lbs.

We take great pleasure in recommending this shoe to anyone wishing a stamp shoe that will wear longer and evener, and give better satisfaction than anything else manufactured for this purpose. Yours very truly,

UTICA MINING CO.,
(Signed) W. J. LORING.

Pueblo, Col., Dec. 17, 1895.

**TAYLOR IRON & STEEL CO.,
HIGH BRIDGE, N. J.**

GENTLEMEN:—In answer to your inquiry I would say that we are well pleased with the Manganese Steel Castings furnished by your company; the burrs in our large sampling mill last fully six times as long as those made of chilled cast iron, which we formerly used. I cannot state how long the jaw plates in the Dodge crusher will last, as those that have been in use since the end of September are still in very good order, notwithstanding their constant severe use.

You may feel well assured of all our orders in your line. Yours truly,

PHILADELPHIA SMELTING & REFINING CO.
(Signed) A. RAHT.

CHAPIN MINING CO.,

(Mine Office.)

Iron Mountain, Mich., May 4, 1896.

**TAYLOR IRON & STEEL CO.,
HIGH BRIDGE, N. J.**

GENTLEMEN:—The Manganese Steel car wheels we purchased from you several months ago have given us entire satisfaction. They are still in service and have shown no wear whatever. Some time ago the hoisting rope in one of our shafts broke, allowing the cage and car, holding two and one-half tons of ore, to fall a distance of 200 feet. The cage and car were completely demolished, with the exception of the four Manganese wheels with which the car was equipped. We could not find that they had received any damage whatever. We do not quote this incident as being our usual way of testing car wheels, but simply to show that the wheels are made of excellent material or they certainly would have broken. Yours truly,

(Signed) JAS. MACNAUGHTON,
Gen'l Manager.

PERSONAL NEWS ITEMS

S. TYACK, a mine owner of Bodie, Mono County, Cal., is sojourning in San Francisco, Cal., for a few weeks.

F. W. WATSON, general manager of the Sumner & Jack Gold Mining Company of Johannesburg, South Africa, is at present visiting in New York City.

F. KLEPETKO has been appointed general manager of the Boston & Montana S. & C. at Great Falls, Montana, and C. W. GOODALE has taken charge as superintendent.

RALPH NICKOLS, who has been at Coolgardie, Australia, for some time, will visit the South African gold fields on his return home. Mr. Nichols was at one time superintendent of the Sutro Tunnel.

D. KEITH, managing owner of Silver King mine at Park City, Utah, is making a tour of Mexico on business and pleasure combined.

IRVING A. REYNOLDS of the Edwin P. Allis Co., of Milwaukee, Wis., has gone to South Africa, where the company is filling some large contracts.

W. M. MACINTOSH, who has been developing some mining properties in Tuttletown, Tuolumne County, Cal., has left for his home at Seattle, Washington.

JOS. S. GIROUX, of the United Verde Copper Co., of Jerome, Arizona, has been examining copper properties in the Moctezuma district of Sonora, Mexico.

J. GRUSS, of San Francisco, Cal., and his son, W. J. Gruss, sailed the 10th of March for Western Australia. These gentlemen expect to operate extensively in ore milling at Lawlers, Australia.

F. C. HAMILTON, former assayer of the Brodie Gold Reduction Company of Cripple Creek, Colorado, is now at Elko, Nevada.

J. P. EVANS, the auditor of the Colorado Iron Works Co., of Denver, was a caller at the JOURNAL office on the 15th of March.

Sir Charles Ross has arrived in Rossland, B. C., from Toronto, Ont.

Anyone knowing the present address of **JOHN HARRINGTON**, formerly of the Esmeralda mine, at Sierra Mojada, State of Coahuila, Mexico, would confer a favor by sending the same to Wm. Gwynn, Durango, Durango, Mexico, Apartado 47.

MR. W. A. CARLYLE, it is stated, will retire from the position of Provincial Mineralogist of British Columbia on April 1st to become consulting engineer and general superintendent for the British American Corporation. Mr. Carlyle has been a very active and capable officer, and has done much to forward the interests of British Columbia, and to collect and publish reliable information as to the mineral resources of the Province. Mr. McConnell, now connected with the Canadian Geological Survey, will succeed him as Provincial Mineralogist.

GEO. HADLEY, JR., who has been employed by the Lacy brothers at San Francisquito, on the Gulf side of Lower, California, Mexico, has just made a trip overland to Los Angeles from the mine by way of San Quintin and Ensenada to Tia Juana, and from there to Los Angeles.

J. G. ALLYN, mining engineer, connected with Mariner & Hoskins of Chicago, has gone to Montana, where he will examine a gold property for Chicago people.

CHAS. HOWARD, of Ensenada, Lower California, Mexico, has gone down the coast to Santa Domingo, where he has charge of the erection of a stamp mill.

J. M. SHERRERD, representing the Taylor Iron & Steel Co., of High Bridge, New Jersey, is taking a trip through the mining districts of the west, and will visit all the important points before returning east. It is his intention to make regular trips each year. His company is making a specialty of shoes and dies, crusher-plates, roll shells and wheels for mine cars. Their business in this line has become so extensive that it has been found necessary to have Mr. Sherrerd on the road almost continually.

JAMES ELDER of Juarez, Lower California, Mexico, has just received a car load of four-inch water pipe. Ten four-horse teams were employed in hauling the pipe to the Juarez placers on the edge of the desert, where he is engaged in mining. This will give him a pipe-line fully three miles in length, and enable him to handle much more of the gravel than in the past.

JAMES M. GLENN, a prominent citizen of Cincinnati, Ohio, was in Butte, Montana, last week. He is interested in the Gold Coin mine, and has been visiting the property.

THE MARKETS.

NEW YORK, Mar. 26th, 1898

The following are the Silver, Copper and Lead quotations for the last two weeks:

	SILVER.	COPPER.	LEAD.
Mar. 14	64½	11 50	3 62½
15	65½	11 50	3 65
16	65½	11 50	3 62½
17	64½	11 50	3 65
18	65	11 25	3 70
19	65½	11 25	3 70
20	65½	11 25	3 70
21	65½	11 25	3 65
22	65½	11 50	3 67½
23	66	11 50	3 65
24	66	11 50	3 67½
25	65	11 50	3 70
26	65½	11 50	3 70

It is hardly worth changing quotations in silver market as the prices remain about the same. There are very few sellers in the market, and those only with small quantities.

The demand is also very uneasy.

The United States Assay Office in New York reports the total receipts of silver at 225,000 oz. for the two weeks ending March 26th.

COPPER.

While the tendency remains very strong and no cheap copper is obtainable very little business has been done, on account of the political uncertainty hanging over the country. Such business as has been done was at full figures, but naturally buyers are rather hesitant in times like the present. Lake copper remains as scarce as previously reported; there does not appear to be any sellers at 12c., but as yet no sales are reported at higher prices. Electrolytic copper has

been somewhat neglected, and must still be quoted 11½c. for cakes, wirebars or ingots, and 11¾c. for cathodes. Casting copper is nominal at 11¾c.

LEAD

Lead has been very dull, and not much progress has been made in any direction. Buyers hope to do better by waiting somewhat, while producers look for rather higher prices and are holding firm. The price in New York has still to be quoted 3.70c.

SPELTER

Selter continues in excellent demand, and most producers are sold out for March and April delivery. Business has been done at \$4.25@\$4.30c., New York, and \$4.02@\$4.07½c., St. Louis.

ANTIMONY.

No change of any note has occurred. Quotations for Cookson's 8½c.; Hallett's 7¾c.; Japanese 7¾c. and U. S. Star 7¾c.

NICKEL.

Business still continues on unchanged lines and no alteration in prices can be reported. We quote for New York ton lots 33½c. and 36c per lb and for smaller orders 35½c. and 38c.

TIN

There has been a very large consumptive demand, both for spot and forward delivery, and had it not been for the higher prices asked, a very large business would have been done. We quote for spot 14.32%, and futures \$14.45.

PLATINUM.

Prices are now quoted at \$15 and \$16 per oz., New York. The London quota-

tions are 58 @ 60s per oz. Supplies are not large and prices are firm. For chemical ware, best hammered metal, Messrs. Eimer & Amend of New York furnish the following quotations: In lots of 250 grams or more, 56c. per gram; in lots of 100 grams or more, 57c. per gram; less than 100 grams, 58c. per gram; unmanufactured platinum will be supplied in same quantities at 2c. less per gram.

QUICKSILVER.

The New York quotation are at \$39.50 per flask.

San Francisco quotations are \$40 for domestic consumption.

POWDER.

The market at San Francisco is fine with the current quotations.

The quotations are as follows:

For Hercules No. 1, from 11¾c. to 17¾c., according to strength and quantity. No. 2, from 9c. to 11c., according to strength and quantity.

COKE.

The market at San Francisco, Cal., is quoted as follows:

English, spot, in bulk..... \$11.00
" in sacks..... 12.00
Cumberland..... 10.00

BORAX.

The San Francisco market in Borax is firm with a good demand.

The market is quoted as follows:

Refined, in carload lots, in barrels..... 7½
Refined, in carload lots in sacks..... 7½
Powdered, in car lots..... 7½
Concentrated, in car lots..... 6½

THE MINOR METALS.

Quotations are given below for New York delivery:

Aluminum:	
No. 1, 98 per cent. Ingots, per lb.	340@400
No. 2, 99 " " " "	310@340
Rolled sheets, per lb.	30c. ap
Alum.—Nickel, "	31@35c
Bismuth, per lb.	\$1.30@1.50
Phosphorus, per lb.	40@50c
Tungsten, per lb.	70c
Tungstic acid.	45c
Ferro-tungsten, 60 per cent.	60c

Variations in price depend chiefly on the size of the order.

CHEMICALS.

The chemical market is rather uncertain and prices have declined somewhat. Receipts of domestic goods are enlarging in volume and thereby causing reduction to be made in quotations.

Quotations generally are as follows:

CAUSTIC SODA.

Quotations for Caustic soda domestic high test are \$1.50 @ 1.55 per hundred lbs.

ALKALI.

Domestic, 58 percent., 50c. @ 55c., foreign 45c. @ 50c. from dock as to style of package.

CARBONATED SODA ASH.

58 per cent., 90c and 95c. per 100 lbs. basis 48 per cent.

DI-CARBONATE OF SODA.

English, \$1.75 and \$2.12½ per 100 lb. American, bulk \$1.25 and \$1.50 per 100 lbs. according to brand.

SAL-SODA.

For domestic, 50c. per 100 lb., less usual discounts; English, 62½c. and 65c. Concentrated sal-soda, \$1.35 and \$1.60 per 100 lbs.

CHLORATE OF POTASH.

Chlorate of potash is quoted at \$8.50 and \$8.75 per 100 lbs.

LEHIGH UNIVERSITY

South Bethlehem, Pa.

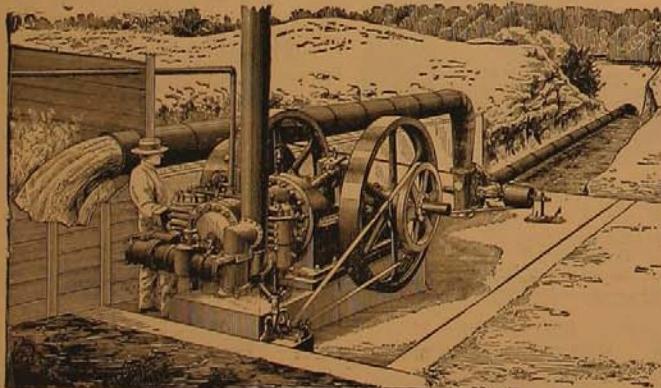
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Courses in Civil, Mechanical, Electrical and Mining Engineering, Metallurgy and Chemistry. Also Classical and Literary Courses. For further information, and for Registers, address, The Secretary of Lehigh University, South Bethlehem, Pa.

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LARGEST GASOLINE PUMPING PLANT IN THE WORLD

The illustration shows the gigantic pumping plant recently built by the Hercules Gas Engine Works on the Packer Ranch, Cotulla Co., 80 h. p. Hercules Engine, pumping 7200 gallons a minute, 27 feet high. Burns Gasoline or Distillate oil. Cheapest power known. Gas, Gasoline and Oil Engines, 200 h. p. Send for Catalogue. HERCULES GAS ENGINE WORKS, 210 Bay St., San Francisco.

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"Phone Brown 313"

JAMES IRVING

SMITH & IRVING,

(FORMERLY, W. T. SMITH & CO.)

Gold Refiners and Assayers.

Our silver amalgam for replating copper plates is being extensively used by millmen. It avoids the necessity of sending plates long distances to be replated. For sale in small quantities, 50c per ounce, a reduction being made on all orders over 20 ounces. Experience proves our silver amalgam will catch more gold than when the copper is electrolyzed.

Our Mr. Smith owned and operated Smelting, Refining and Chemical works in Providence, R. I., for over 20 years.

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Second-Hand 14-24 inch Corliss Engine.

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Laboratory, 214, Pine Street
SAN FRANCISCO, CAL.

MINING STOCK QUOTATIONS

BOSTON

Arma Con.	4 00	Humboldt	—
Allouez	—	Kearnsarge	17 00
Anaconda	22 00	Lake Sup Iron	—
Atlantic	22 00	Merced	4 75
Bonanza	—	Napa Cons	8 50
Boston and C.C.	—	New Idria Mg	—
Boston & Mont'g	20 25	Old Dominion	20 25
Butte & Boston	20 25	Oscoda	34 50
Calmet & Hecla	5 00	Pioneer	5 00
Catalpa	—	Ridge	110 00
Central	15 50	San Ysidro	—
Dominion Coal	21 50	Tamarack Jr.	—
Dominion Pref.	16 00	Tamarack	128 00
Franklin	2 00	Tecumseh	3 89
Gold Coin	—	Wolverine	18 00

NEW YORK.

Alamo	03 1/4	Homestake	29 50
Alice	40	Iron Silver	—
Annetta	45	Mexican	30
Best & Belcher	80	John Gibson	19
Brownwick	—	Ophir	—
Crown Point	65	Pharmacist	10
Con. Cal. & Va.	04	Plymouth	—
Cripple Creek Con	08 1/2	Quicksilver	3 00
Deadwood	—	QuickSilver pf'd	11 00
Favorite	11 25	Sierra Nevada	—
Fortuna	—	Standard	1 60
Golden Fleece	45	Union Con	—
Gould & Curry	45	Yellow Jacket	—
Hale & Norcross	—		

COLORADO SPRINGS STOCKS

Alamo	03 1/4	Isabella	30
Anacada	48	Iowa	—
Appleton Juanita	20	Jack Pot	05 1/2
Bankers	01 1/2	Jefferson	08 1/2
Ben Hur	02	Mollie Gibson	23 1/2
C.K. & N.	00 5/8	Mount Rosa	23
C.C. & Manitou	02	Pharmacist	09 1/2
Creede & C.C.	—	Portland	70
C.C. Consolidated	05	People's	02 1/2
Garfield Grouse	04	Sacramento	02
Golden Fleece	30	Star of the West	—
Gold & Globe	—	Union Gold	22
Gold Standard	03 1/2	Virginia M.	02 1/2
Ironclad	300	Work	05
	04 1/2		

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Successor to San Francisco Tool Co.'s Machine & Mfg Dept.
MANUFACTURERS OF AND DEALERS IN

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Briggs' 2-Stamp Triple-Discharge Quartz Mill, of Latest Improved pattern, Rock Breakers, Ore Feeders, Concentrators, Engines and Boilers, Hoisting Rigs to be operated by Horse, Steam Power or any other motor; Ore Cars and Ore Buckets, Cornish and Jack-head Pumps, Triple-acting Pumps, Centrifugal Sand and Gravel Pumps, Wooden Tanks and Pumps for the Cyanide Process, Pipe and Gate Valves, Link Chain Elevators for elevating and conveying all kinds of material. Estimates as to cost of machinery and its erection furnished upon application. Write for Catalogue and Prices.

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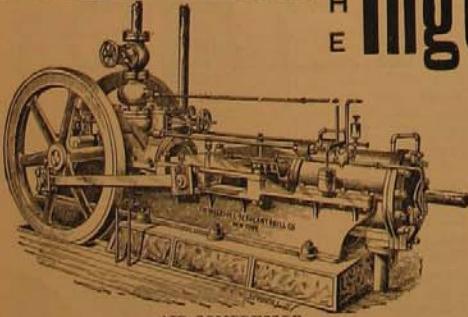
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Bi-Metallic	—	Merrill	—
Combination	—	Ontario	—
Con T & P'n'n.	35	Yellowstone	11
Diamond Hill	—		

MEXICO

Name of Company	State	Price
Alianza	Hidalgo	5
Antonio y Concordia	Guanajuato	24
Angustias	Guanajuato	200
Arcavil y Anexas	Hidalgo	210
Asturiana y Anexas	Zacatecas	500
Barradon y Cobras	Durango	100
Bartolome de Medina	Hidalgo	100
Cabezon y An.	Zacatecas	30
Candelaria de Pinos	"	160
Candelaria de Pinos	"	20
Capuzaya	Durango	80
Carmen	Hidalgo	350
Castellana y San Ram	Tamaulipas	80
Chapultepec	Guadalajara	10
Cinco Señores y An	Guanajuato	650
Concepcion y Anexas	Guanajuato	280
El Oro	Guanajuato	40
Espana y An.	Mexico	1,300
Guadalupe y An.	Guanajuato	180
Huautla	Santa Ana	100
Luz de Borda	Michoacan	40
Luz de Maravillas	Hidalgo	200
Pabellon	"	150
Palma	Zacatecas	150
Purisima de los Com	Hidalgo	5
Real del Monte	Hidalgo	900
Refugio y Va	Durango	8
Restaurador	"	50
Romero y Anexas	Hidalgo	270
San Francisco	"	100
San Ped. Chalchihuites	"	925
San Rafael y Anexas	"	100
do. Free Stock	Hidalgo	20
San Rafael del Oro	Hidalgo	730
Ste. Maria de la Pas	S. Luis Potosi	730
Sirena	Durango	80
Soledad.	Hidalgo	400
Sorpresas	"	250
Trinidad	Guanajuato	40
Tlaxiango	Puebla	27
Uniao	Hidalgo	260
Zaragoza	"	15
Zomezahuacan (gold)	Vera Cruz	100
Zona Min. de Pozos	Guanajuato	15

Note.—The above Mexican stocks are figured on the basis of Mexican silver

HELENA, MONTANA

Am Den & M Co. 100 Helena & Frisco. 8 00

Bald Butte.... 2 50 Iron Mountain.

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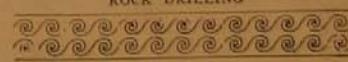
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ROCK DRILLING



INCORPORATED MINES PAYING DIVIDENDS.

NAMES OF MINES	LOCATION	No. of Shares	Capital Stock	Par Value	Amount of last Dividend	Date of Last Dividend	Total Amount Paid in Dividends	Kind of Mineral Produced
Aetna Cons.	California	100,000	\$ 500,000	\$ 5	\$ 10	Sept 1897	\$ 110,000	Q.
Adams	Colorado	150,000	1,500,000	10	.04	October 1895	693,500	S, L, C.
Alaska, Treadwell	Alaska	200,000	5,000,000	25	35½	October, 1897	3,250,000	G.
Alaska Mexican	Alaska	200,000	1,000,000	5	.10	Oct., 1897	297,031	G.
Alice	Montana	400,000	10,000,000	25	.03	Oct 1897	1,055,000	G.
Anaconda	Montana	1,200,000	30,000,000	25	1 25	May 1897	3,750,000	C.
Anchorage Leland	Colorado	600,000	600,000	1	.01	Oct 1897	84,000	G.
American Gold	Colorado	300,000	3,000,000	10	.02	Aug 1897	273,000	G. S. L
Atlantic	Michigan	40,000	1,000,000	25	1 00	Feb. 1897	740,000	S.
Bald Butte	Montana	250,000	250,000	1	.03	Sept 1897	512,500	G. C. S.
Bangkok C-Bell	Colorado	600,000	600,000	1	.01	July 1896	107,510	S. L. C.
Big Six	Colorado	500,000	500,000	1	00½	April 1897	5,000	G. S.
Boston & Montana	Montana	150,000	3,750,000	25	3 00	Aug 1897	8,275,000	G. C. S.
Bullion Beck and Champion	Utah	100,000	1,000,000	10	.50	Mar 1897	2,165,000	G. S.
Bunker Hill and S.	Idaho	300,000	3,000,000	10	.05	Oct 1897	324,000	S. L.
Caribou	British Col.	800,000	800,000	1	.02	May 1897	156,965	G.
C. O. D.	Colorado	50,000	500,000	1	.01	March 1896	25,000	G.
Calumet & Hecla	Michigan	10,000	2,500,000	25	10 00	Oct. 1897	50,850,000	C.
Centennial Eureka	Utah	30,000	1,500,000	50	1 00	Mar 1897	2,010,000	S. L.
Central Lead	Missouri	4,000	400,000	100	1 00	Oct 1897	18,000	L.
Charleston	South Car.	10,000	1,000,000	100	1 00	Feb 1897	150,000	
Champion	California	34,000	340,000	10	.25	Aug 1897	278,200	G.
Consolidated, California and Virginia	Nevada	216,000	21,600,000	100	.25	March 1895	3,592,800	G. S.
Copper Queen Consolidated	Arizona	200,000	2,000,000	10	.25	June 1895	1,910,000	C.
Crescent	Utah	24,000	600,000	25		July 1897	280,000	
Daly	Utah	150,000	3,000,000	20	.25	Mar 1897	2,925,000	S. L.
Deadwood Terra	Dakota	200,000	5,000,000	25	.40	June 1897	1,320,000	G.
De Lamar	Idaho	400,000	2,000,000	5	.25	Jan 1897	2,250,100	S. L.
Della S.	Colorado	1,000,000	1,000,000	1	.10	Jan 1897	60,000	G.
Doe Run	Missouri	5,000	500,000	100	.50	October 1897		L.
Dalton and Lark	Utah	2,500,000	2,500,000	1	00½	August 1896	87,500	S. L.
Elkton Consolidated	Colorado	1,250,000	1,250,000	1	.03	Sept 1897	361,960	G. S.
El Paso	Colorado	650,000	650,000	1	.01	Aug 1897	5,393	G. S.
Florence	Montana	500,000	2,500,000	5	.01	May 1897	132,530	S.
Galena	Utah	100,000	1,000,000	10	.05	Jan 1897	71,000	G. S. L.
Garfield Grouse	Colorado	1,200,000	1,200,000	1	.01	Feb. 1897	24,000	G.
Geiser-Marion	Utah	300,000	1,500,000	5	.03	Nov 1897	54,000	G.
Golden Eagle	Colorado	1,000,000	1,000,000	1	.01	Sep. 1896	10,000	G.
Golden Fleece	Colorado	600,000	600,000	1	.01	Feb. 1897	569,179	G. S.
Gold Coin	Colorado	200,000	1,000,000	5	.05	Aug 1897	150,000	G. S.
Gold and Globe	Colorado	750,000	750,000	1	3-10	July 1897	51,625	G.
Hecla Consolidated	Montana	30,000	1,500,000	50	.50	Feb 1897	2,175,000	S. G. L. C.
Helena & Frisco	Idaho	500,000	2,500,000	5	.04	August 1896	475,000	S. L.
Highland	S. Dakota	100,000	10,000,000	100	.20	Oct 1897	3,424,918	G.
Holy Terror	S. Dakota	300,000	300,000	1	.03	Sept 1897	18,000	G.
Homestake	Dakota	125,000	12,500,000	100	.25	Oct. 1897	6,431,250	G.
Hope	Montana	100,000	1,000,000	10	.10	Nov 1897	732,252	S.
Horn Silver	Utah	400,000	10,000,000	25	12½	January 1896	5,080,000	S. L.
Idaho	Brit. Col.	500,000	500,000	1	.05	Mar 1897	152,000	
Iowa	Colorado	1,000,000	1,000,000	1	00½	Oct 1897	65,000	G.
Iron Mountain	Montana	500,000	5,000,000	10	.01	October 1897	497,500	S.
Isabella	Colorado	2,250,000	225,000	100	00½	June 1897	270,000	G.
Kearsarge	Michigan	40,000	1,000,000	25	.10	Aug 1897	[160,000	C.
Last Chance	Brit. Col.	500,000	500,000	1	.04	Jan 1897	42,000	S. L.
Le Roi	British Col.	500,000	2,500,000	5	.10	Oct 1897	625,000	G.
Minnesota	Minnesota	165,000	16,500,000	100	1 50	July 1896	3,240,000	I.
Montana Ore Purchasing	Montana	40,000	1,000,000	25	.01	October 1897	640,000	
Moose	Colorado	600,000	600,000	1	.01	January 1896	186,000	G.
Morning Star	California	2,400	240,000	100	8 00½	Sept. 1897	558,600	G.
Mt. Rosa	Colorado	1,000,000	1,000,000	1	00½	Oct. 1896	30,000	G.
Mercur	Utah	200,000	5,000,000	25	12	Oct 1897	825,000	G.
Mammoth	Utah	400,000	10,000,000	25	05½	Nov. 1896	1,150,000	G. S. O.
Moon Anchor Gold	Colorado	600,000	600,000	1	.02	Nov 1897	63,000	G.
New Elkhorn	Colorado	300,000	1,500,000	5	.24	Sep. 1896	72,000	G.
New York & Hon. Rosario	Central A.	150,000	1,500,000	10	.10	Oct. 1897	832,500	S. G.
Napa	California	100,000	700,000	7	.20	Oct 1897	870,000	Q.
New Idria Quicksilver	California	100,000	500,000	5	.10	Sept 1897	20,000	Q.
Ontario	Utah	150,000	15,000,000	100	10	June 1897	13,445,000	S. L.
Osceola	Michigan	50,000	1,250,000	25	1 00	June 1897	2,172,500	C.
Parrot	Montana	230,000	2,300,000	10	.06	June 1897	1,656,122	C.
Pennsylvania Consolidated	California	51,500	5,150,000	10	.05	Sept 1897	20,750	
Portland	Colorado	3,000,000	3,000,000	1	01½	Oct 1897	1,163,000	G. S.
Princess	Colorado	1,000,000	1,000,000	1	.00	Feb 1897	45,000	G.
Quincy	Idaho	100,000	2,500,000	25	4 00	August 1897	9,470,000	C.
Rambler-Cariboo	Brit. Col.	1,000,000	1,000,000	1	.02	April 1897	40,000	
Reco	Brit. Col.	1,000,000	1,000,000	1	.01	May 1897	187,500	S. L.
Sacramento	Utah	1,000,000	5,000,000	5	.00	March 1897	22,000	G.
Small Hopes Consolidated	Colorado	250,000	5,000,000	20	.10	Mar 1896	3,275,000	S.
South Swansea	Utah	150,000	150,000	1	.05	Oct 1897	59,960	S. L.
Standard	California	200,000	20,000,000	100	.10	Sept 1897	3,757,868	G. S.
St. Joseph	Missouri	250,000	2,500,000	10	.15	Oct 1897	24,000	L.
Silver King	Utah	150,000	3,000,000	.20	.25	October 1897	1,237,500	S. L. G.
Slocan Star	Brit. Col.	2,000,000	1,000,000	0.50	.05	Mar 1897	350,000	
Smuggler Union	Colorado	50,000	5,000,000	100	1.00	Oct 1896	150,000	G. S.
Swansea	Utah	100,000	500,000	5	.05	Oct 1897	61,500	S. L.
Tom Boy	Colorado	200,000	2,000,000	10	.20	March 1896	410,000	G.
Tamarack	Michigan	60,000	1,500,000	15	3 00	June 1897	4,950,000	C.
Union	Colorado	1,250,000	1,250,000	1	.01	June 1896	73,000	S.
United Verde	Arizona	300,000	3,000,000	10	.25	December 1893	562,500	C.
Utah	Utah	100,000	1,000,000	20	.02	Feb. 1897	175,000	G. S.
Utah Consolidated	Utah	30,000	150,000	5	.02	Sept. 1896	3,000	S. L.
Victor	Colorado	200,000	1,000,000	5	.10	March 1897	765,000	G.
Western Mine Enterprise	Montana	500,000	600,000	1	.01	Mar 1897	12,000	
War Eagle	British Col.	600,000	600,000	1	.06	October 1896	187,000	

S, Silver

G, Gold.

L, Lead.

C, Copper.

Q, Quicksver.

I, Iron.

B, Borax.

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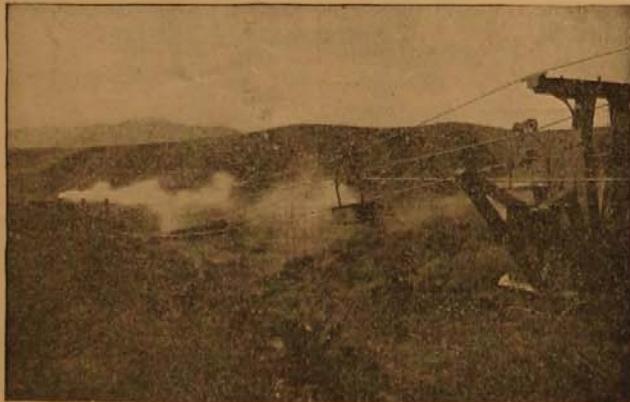
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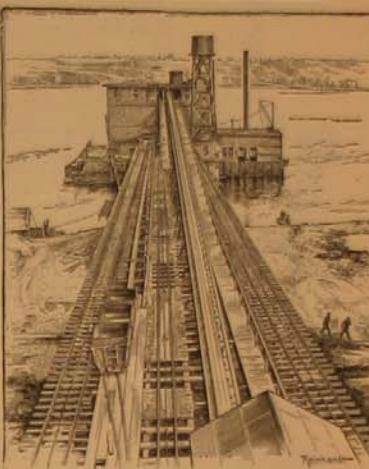


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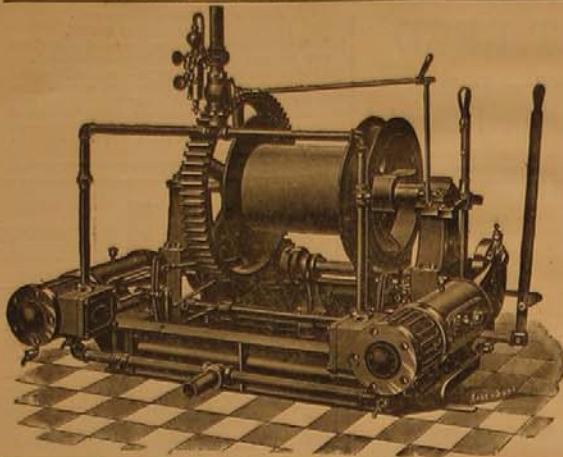
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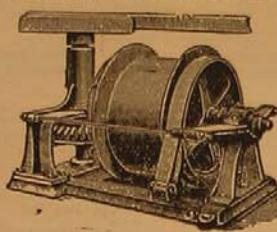
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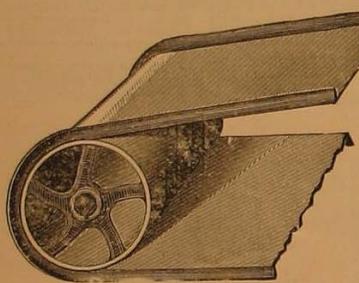
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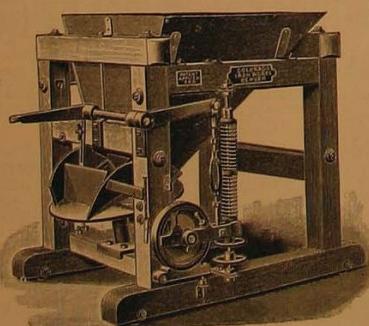
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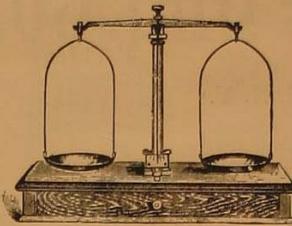


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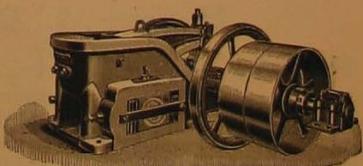
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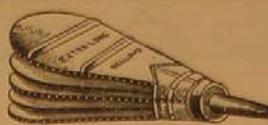
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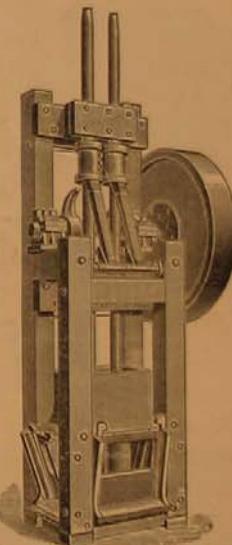
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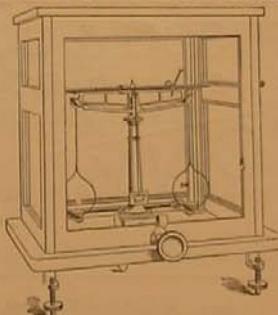
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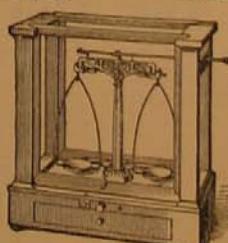
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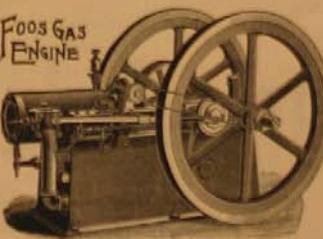
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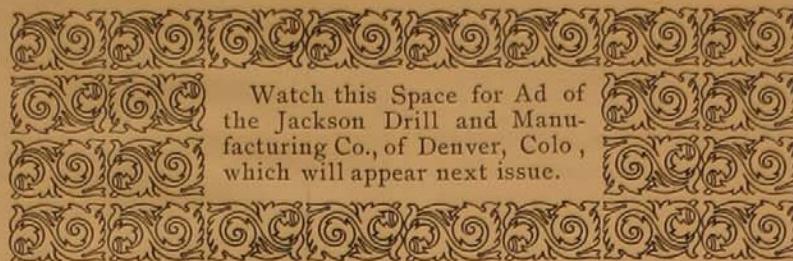
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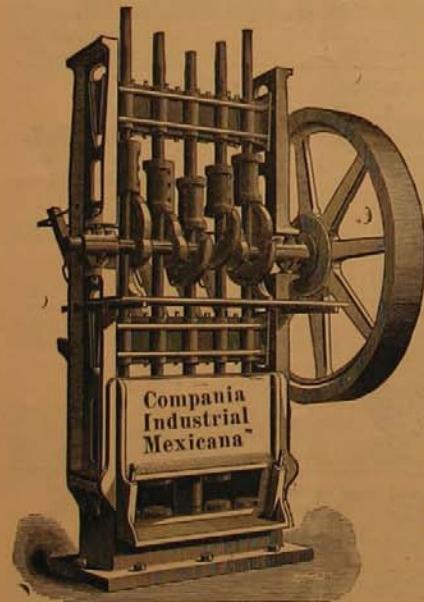
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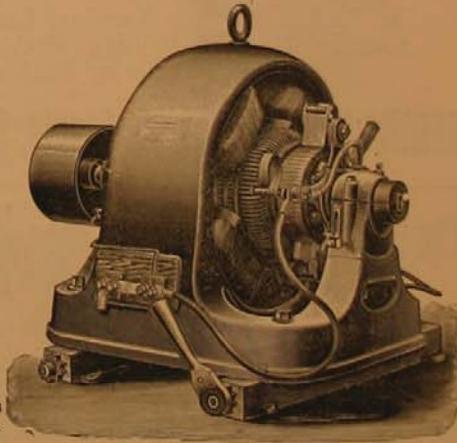
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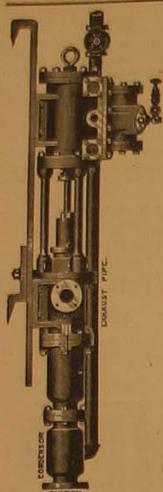
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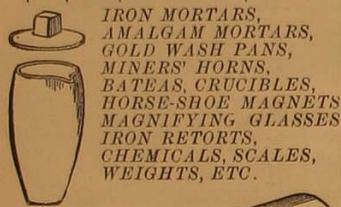
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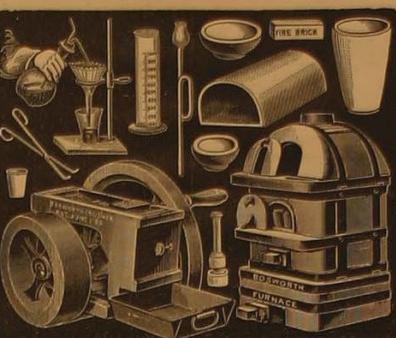
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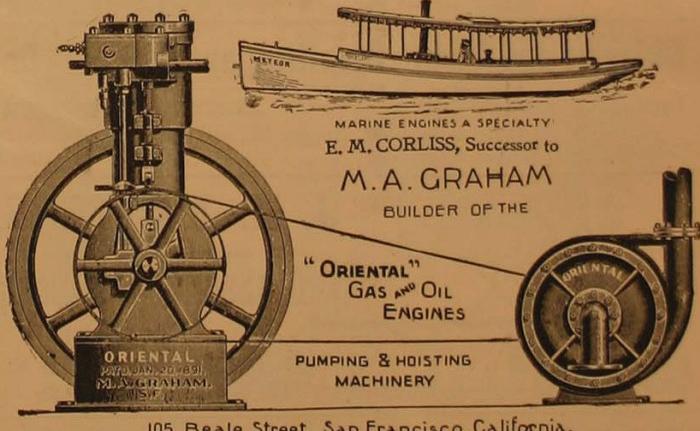
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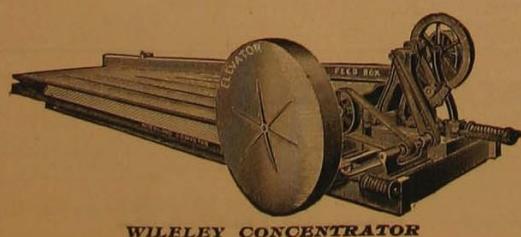
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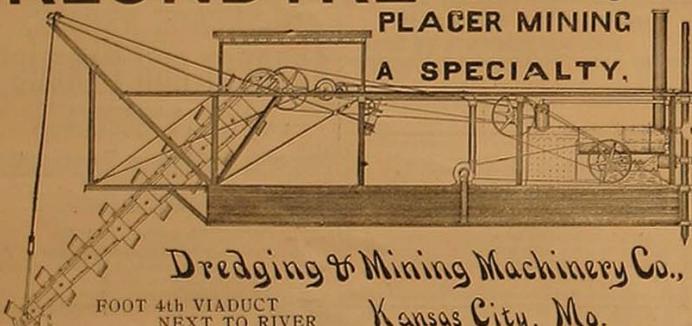
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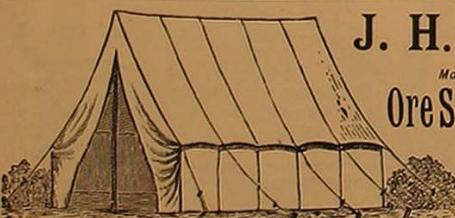
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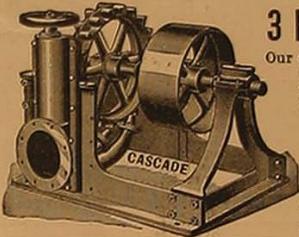
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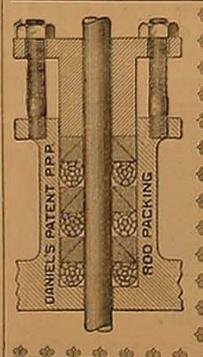
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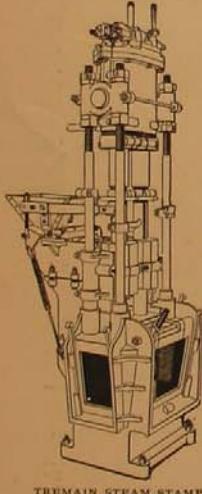
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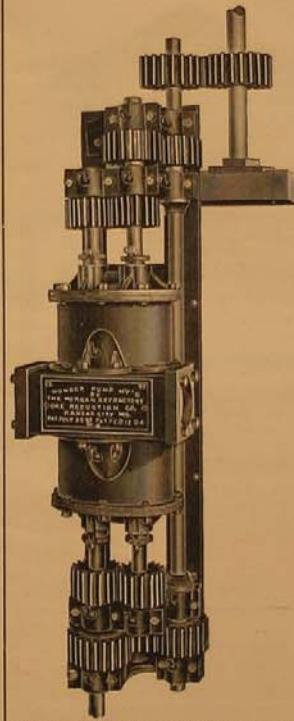
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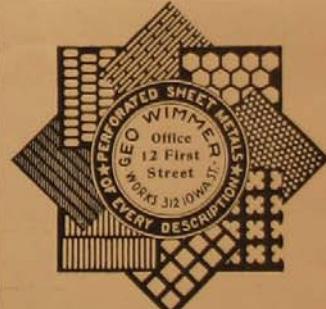


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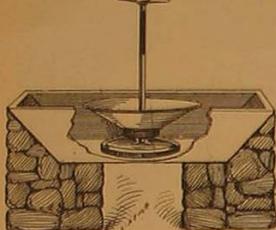
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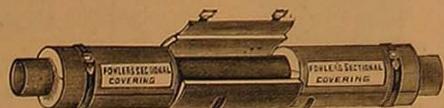
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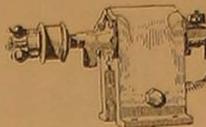
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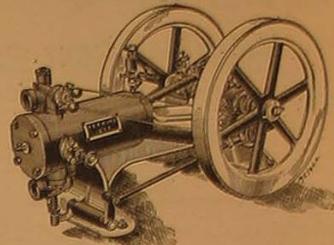
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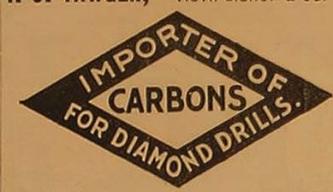
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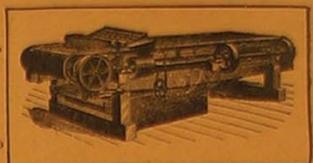
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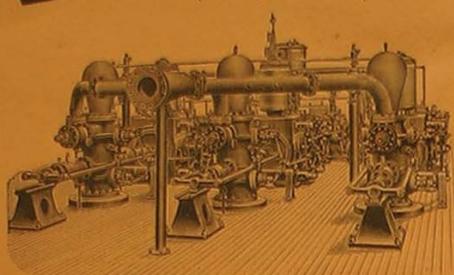
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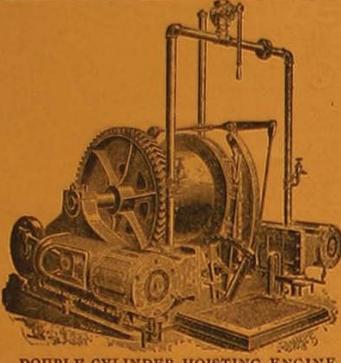


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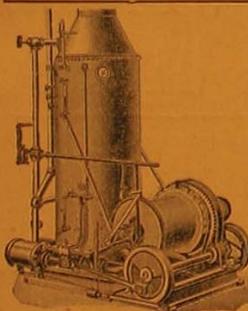
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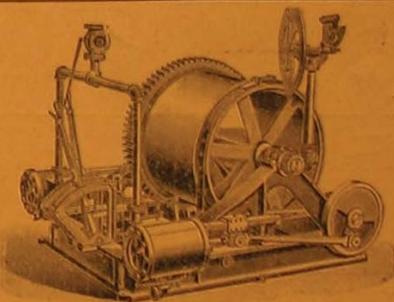
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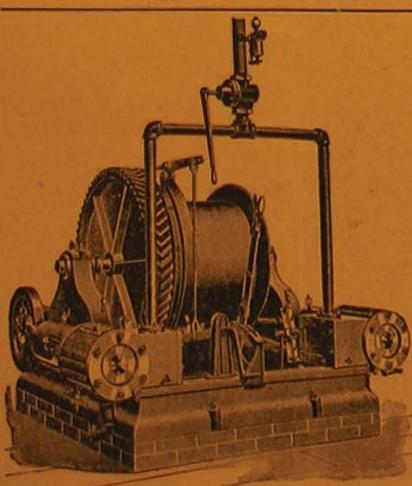
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